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COLORADO:

UNITED STATES, AMERICA,

ITS

GENERAL AND OTHER RESOURCES.

*Including a descriptive List of a large number of the principal
Mines; Advantages of Soil and Climate; Railway
System; Journey from England, &c., &c.*

MICROFILM AVAILABLE

By R. O. OLD.

M/Pres'87

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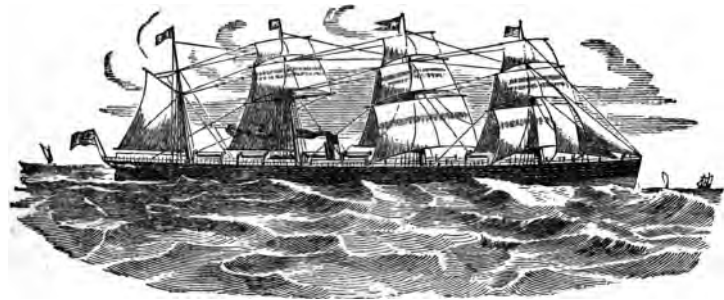
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LOAN

PREFACE.

LITTLE more than three years ago, I published a Pamphlet, entitled, "COLORADO: ITS HISTORY, GEOGRAPHY AND MINING." The success attending my effort in this instance, and desire to direct the attention of Capitalists * to a consideration of the claims of Colorado, as offering a new field for investment, has induced me to prepare and issue this second work, which I hope will prove a reliable *résumé* of facts, and as interesting in matter and arrangement as at least was my first publication.

I have endeavoured as before to give only known facts, and in the following pages have carefully sought to condense much of what has from time to time been more voluminously (but perhaps not in a less interesting manner) written of Colorado. The facts given are such as relate to the present

condition and future prospects of the varied interests of the Territory, viz., the mining for gold, silver, copper, lead, coal, iron, salt, and other metals and minerals; the growth of towns and the facilities afforded for emigration; the value of stock; the advantages offered for settlement to

near 1866; from the publication of and addressing by invitation a Special and Capitalists (representing many do to consideration for investment in treating her Ores, I sought to interest, attention to the metalliferous wealth of these efforts, encouraged me to persevere of my visit to England, namely, the establishment of the present BRITISH AND COLORADO which (with Mr. W. COPE, its able and directly and indirectly, of interesting all in Colorado.

the immigrant; and the reasons why labour and capital should be drawn to the country; while other matters such as railroads, how to obtain land, wages, price of produce, rates of fare and freight, *means of approach*, &c., &c., are as fully treated as space will allow, and as concisely as those seeking information concerning the resources and claims of Colorado for settlement, make it necessary to detail.

The collected facts of "Placer" and "Gulch," (aside from ordinary or lode mining,) will be found interesting, particularly to the intending emigrant, who on reaching the land of his proposed adoption might be in want of immediate employment, which is *always to be obtained during the season in any of the Gulches and Districts, where this class of mining is carried on.*

Lastly, I have in a condensed form, called the attention of Tourists to a few of the *many* very great attractions of the mountains, parks, lakes, &c. of Colorado, and hope that the same will be the means of inducing many, who have "*done*" the Continent of Europe and other parts of the world, to devote *at least one season* to an attempt at realizing the fact of the grand and vast, as well as the beautiful in nature to be met with in the "*limitless*" Rocky Mountains of America.

R. O. OLD.

BARTHOLOMEW HOUSE,
LONDON, E.C.

August 25th, 1872.

COLORADO.

INTRODUCTORY.

It has happened, particularly within the last quarter of a century in America, that a new Territory or State has come prominently into notice, about which it has seemed almost impossible to say or believe too much.

Noticeable as an example of this, has been the well known rise of California, which since the first discovery of gold there (some twenty-four years ago), has sprung into existence, becoming a powerful and populous State, with large well built cities and towns, flourishing manufactories, husbandry on a grand and advancing scale, flocks and herds innumerable, vineyards and orchards yielding of their abundance, together with every sign and appliance of civilized life, and social and material progress; while teaming with a commerce before unknown to her coast and rivers, she stretches her arms for the trade of China and Japan; dispatches her ships and steamers to the British and the new acquired possessions of the North; and extending the sphere of her influence southward, advances along the whole coast line to the Horn, embracing in her interest the South American States—Peru, Chili and others—and beyond, embosomed in the broad “Pacific,” Australia, and the Islands of the Sea.

Astounding as all this may seem, as evidence of wealth and power, it will be remembered with what incredulousness the first story of her riches was received; yet the greatness of her past and present is but the immediate result of the mineral wealth (almost entirely of gold) discovered there.

How immensely enhanced then, considered in comparison, and in reference also to the importance of geographical position, will appear the gold and silver discoveries of the metalliferous region of Colorado, and how inexhaustable the secondary supplies of all the baser metals and Coal. Indeed, as might be surmised, Colorado promises to become a country than which, for the same extent of area, there will not be another of equal richness in the world.

As in the case of California, so with Colorado, much has yet to be said and written, before a proper and commensurate idea can be entertained of her immense importance, and vast mineral and other wealth. The *Standard* and *Mining Journal* of this City, some four and five years ago, published occasional articles (furnished by the author and others), upon this Territory, which were the means of directing a very considerable amount of English attention to the country.

But it is the fact of her central position, more than anything else, that has been the subsequent means of securing for Colorado that consideration of her claims to greatness, which securing, enables her, and will still enable her, to occupy before the world the prominent and foreground position she is entitled to. Being geographically central, and possessed of immense pastoral and agricultural, as well as mineral wealth, the whole of Colorado's physical resources must force her, as they measurably have, into importance; while pressing with the weight of the fact that \$60,000,000 to \$70,000,000 in gold and silver has already been the product of her mines, her title to be proclaimed and prophesied of, as an equal of the great seaboard State, will not be questioned; but rather by the showing made, and the possession of vast internal resources, directing, as they are now, a continuous stream of immigration (the sure precursor of the flood to follow), rapidly settling her plains and mountains, confidence will be strengthened, and that full and complete interest, now awakened, be assured. Nothing exists in England or in Europe that answers to the number of her resources, the richness of her deposits, and the vastness of her metallic wealth.

Having in my previous work briefly given some account of the early history, first discovery of Gold, subsequent settlement, and physical geography of Colorado, I must be excused from any further or special mention under these heads, and pass to a consideration of what the present of this Mining Country (judged in connection with its past development) promises for the future, and what by inference is reliably offered to the Emigrant and Capitalist.

RESOURCES.

The sources of wealth of any country are what it can make available, and the sum total of that wealth is always in proportion that each resource is quantitative and qualitative as to amount and value. Colorado is metalliferous, producing gold and silver, and all the baser metals. She has coal in inexhaustible and recurring beds; and in close proximity all the varieties of iron ore, fire and pottery clays, flour-spar for fluxing ores, the different building rocks and limestone; also, saline, hot sulphur and other mineral springs, and soda lakes, some of the latter being only 12 miles from Denver. She has, too, immense water power and timber available for use everywhere, and along with these, manufacturing, ore smelting, and Railroad facilities. Colorado has also millions of acres of the very best farm and pasture lands; the first available for producing every variety of grain, and the latter, in the great extent of numerous ranges, suitable for every means of profitable cattle and sheep raising. And last (although not the only other advantage and resource of the territory) Colorado has a dry, healthy climate—*none more so*; beautiful scenery, and game (Buffalo, Elk, Deer, Antelope, &c.) for the tourist and visitor of pleasure; while as a home for the industrious and homeless of all lands, it cannot be excelled.

As it is in proportion to the extent, value, and proper development of each resource that progress, wealth, and population are assured to any country and nation, there is in store for the whole of the territories of the United States, situated west of Dakota, Nebraska, and Kansas, an amount of material prosperity scarcely before enjoyed by any people, and as—within this region, extending from the British possessions north, to Texas and Mexico south, and from midway of the Plains east, to California west—Colorado has shown her superior importance and value, and the ease with which she can now be reached and made available, few can doubt but her future will be all that has been claimed, and all that the millions yet to find a home within her borders can expect. Day by day, are new developments made, and fresh evidences accumulated of the marvelous extent of her mineral and metallic wealth; and it is not, perhaps, too much to say, that almost more than the dream of the early discoverers of the Continent will be, is in fact, already being realized, and that ere long, more than the treasure value of a "Peru" will be pouring into the lap of an astonished world.

Not undeservedly, because of the forecast of the influence of her abundance upon us is Colorado raised into the first importance, and not inaptly either on account of her CENTRAL POSITION with reference to the great through route of commerce and travel, is she called like Pennsylvania the "Key Stone" of the Rocky Mountains.

Surely Colorado must soon, to a very great extent receive attention from the capitalists of Europe; and as she has now fallen into line as one of the foremost mineral producing regions of America, be the means of returning more than dollar for dollar of her total cost to investors. All that is and has been wanting is *skill*, and judiciously applied capital for the increase of every industrial resource—mining, milling, manufacturing, farming, &c., consequent upon which will come the successful working of mines, the erection of proper and necessary works for the treatment of all Ores, quadrupled Bullion returns, the change from Territorial vassalage to Statehood, remunerative rates of compensation, and the reasonable enjoyment by her people of every comfort and luxury.

SPECULATIVE MINING.

It has been a fault of the large number of mining operations—those of gold and silver, none the less of our Territory than of the world—that they have been carried on as if failure was impossible, as if the sources of supply were so inexhaustable that any amount of waste and expenditure could be sustained, and any amount of extravagance tolerated. Looked at and engaged in as a speculation, instead of a safe and solid investment, it has been the rule with those who have ventured their money in the purchase of Co-operative Stocks, and even in the formation of strictly private and associate Companies, that they have done so, making up their minds, that if a loss, it would not surprise them, or be any more than what had happened before, while if a good thing, the "spec" or "throw" will have paid them for "going in." Thus does mining appear, and thus is the public mind made up—it not being thought, in one instance out of a hundred, that the same principles that apply to the successful carrying on of any business or profession of life, should apply (even if not more strictly) to mining; and that whereas few businesses or professions are expected to pay, either immensely or nothing, but only to be moderately remunerative, it should not become a conviction that no mine or operation of mining, unless it pays largely can pay at all; but

that it should be believed, that in proportion as judgment is exercised and economy practised, and perseverance has been continual, mining will pay, not as the exception, but the rule.

Often has it been made evident that mining companies have become hopelessly involved from the first, through not exercising proper judgment in selecting and purchasing good properties whereon to commence or continue work. Again, mines upon which there has been a much greater expenditure of money than necessary, and mines where there has been a manifest want of knowing how to first open, and afterwards properly push work on them, have often broken up companies, because although ordinary rich, they have been unable to return a profit upon invested capital, as for instance upon £50,000, £100,000, £200,000, or it may be larger amounts, when half or a third should have sufficed and been ample.

In reference to mining manias and panics (as what has been said leads me to a slight consideration of these), I would say, that while there should be a proper exercise of judgment in selecting properties to work, and a proper use of means in developing them, there should be no undue excitement over large yields and proportionate dividends, not at least to the extent of venturing generally in the purchase of corporate mining stocks, as at present issued, for while a few good companies may return a profit on capital, by far the greater number are so purely speculative (having never been intended to be any other), that possessing little or nothing whereon to base a value, they break, and more or less involve all who may have become interested in them, in ruin—which being repeated often, with only the same or slightly varied results, the public loses confidence, and a panic ensues.

Now with this state of things brought about by dishonesty and corporate stock jobbing, mines and mining receive not only their full share, but all the blame. This is wrong, and the interest that like any other, if properly managed, would pay, is injured; for while every gain in stock is credited to the speculation, all losses, at least by the non-professional, are set down as having been sustained in mining, when the fact is otherwise, viz., that the money lost has but changed hands, instead of having been, as supposed, legitimately spent in opening and working the *reputed* mines, or *per contra*, where there has been a gain, that the same has been made out of product. In all stock jobbing (here, as in America), the losses sustained always equal in their gross, whatever their amount, the sum total that has been made; and by those whose apparent chief and only interest was to deceive.

Akin to money thus lost, has been money paid for properties misnamed mines, and money subsequently spent in trying to find in these what only a real mine possesses. Yet because, as with the unsuccessful speculator in Stocks, nothing has been realized. Mining again receives the blame, and notably where really no blame attaches, from the fact of no mine having been owned, and consequently no mine worked. But so it is. Losses in Stock gambling, losses sustained in working poor and indifferent mines (*or no mines at all*) for want of a judgment that could choose better, and *losses entailed in ways other than I have named*, are all scored as so many black marks against mining.

Now I will but reiterate here, what I have often said in argument and in personal rencounter, viz.: that mining legitimately carried on, will pay; that if the same judgment and acumen were exercised, and the same economy used as is practised in any of the ordinary avocations or professions of life, it will return well upon investment; that if the same attempt at skill in mining be made as is usual among the trades and with artists, perfection (approximately) as well as profit would result; and if no account charges were made, *other than what were real*, and no expensive offices with high salaried staffs supported, there would be less chance at fixing blame where notably no blame attaches, and mining (even despite the general want of skill and economy) would be oftener found to pay than now; especially would this be discovered to be the case by the thousands of annual losers, were they, as well as those who swindle them, more honest.

They who best know the value of a good mine well worked, are silently realizing. Such but seldom talk or write. Like a dog with a rich bone, they do not desire to be looked at, much less questioned. But how different the other side. He who has a loss to tell, like the man well cudgelled, makes an outcry greater than the whole crowd unhurt. California, undeniably, owes everything to her gold mines, and so at this present does Colorado, but with this difference in favour of the latter, that in future to her gold production *she will add a large and an increasing SILVER interest*. Certainly countries like these, that produce bullion by the millions annually, are not unworthy of consideration, nor are their chief and kindred interests unworthy of being sagaciously looked after and enquired into. What mining of every kind (whether for gold or silver, or for any of the other metals) asks, is fair and honest representation—the truth, and if need be the whole truth, but no more than the truth.

Every business has its risks, and so has mining. But taking the actual results of this interest, it shows less risk, where it has been pursued as a regular business than any other; and where prudence and economy has been practised, larger proportioned profits. It is free from the risk attending close competition, over importation, dull markets, dead seasons, changing fashions, stock remnants, bad debts, and the worry of a hundred annoyances. It is not one season that you make and another lose, nor one time that you are fearful and another jubilant on account of market changes. If a good mine is owned, with each shaft, each level and stope in order, and all the dead work with the opening a year ahead, and large reserves in store, it is the most steadfast and trustworthy of all investments, and the most remunerative for revenue. No advertising needed to make it known, no higgling to beat down, no *white* lies told to make a penny, no adulterations to swindle, no customers to please, and all seasons, however severe, alike.

LEGITIMATE MINING.

In the present chapter, the author (opposed to speculative mining, in the sense that he has just treated this as a subject matter,) will explain some of the principles that underlie and control in legitimate mining, giving a few facts and particulars, suggestive of the object and results of effort in this direction—success, under the circumstance of a practical application, being the rule and not the exception. In *seriatum* then; the facts that should always be ascertained in reference to any proposed mining operation, are—

First. That the prevailing geological formation of the District or Mountain, where the mine or mines to be opened are situated, should be Plutonic, and of the class of Rocks known by geologists as mineral bearing.

Second. That the outcrop should unmistakably indicate the near existence of a lode, and be so strong, the quartz being more or less stained with metallic oxydes, as to give unquestioned evidence of strength with depth.

Third. That the mining interest owned is not so situated on the mountain, or is so remote from any immediate approach, as to be inaccessible, save only after much expensive labor and loss of time, but which labor and time, if given to make available such interest, would practically neutralize any superior value otherwise possessed.

Fourth. After being satisfied that the three requirements noted have been complied with, it will have to be determined what the plan of opening with a view to extensive future working shall be. To commence properly then, the course and the immediate physical surroundings of the lode should be studied and mapped, and, *for reference and guidance*, a thorough comprehensive plan of the future of the mine devised showing shafts, levels, and stopes, together with any other requisite, drawn to a scale and made necessary on account of its importance, with a view to economy and that there should be as little useless work, and as little subsequent change, as possible.

Fifth. Every required preparation should be made for commencing work—the operation of mining compelling that every detail of surface, as well as of underground, should be studied and provided for.

Sixth. That the mine, now in process of opening, be frequently and minutely examined, and every change in character both of rock and mineral, noted, as it is gratifying, as well as necessary, to be assured that the evidence throughout all the workings, of the existence of an undoubted *true* fissure in another vein, continually accumulates; that the enclosing rock everywhere maintains a distinctive characteristic from the material of the lode; that the strata of the “country” is well defined, and unmistakably opposed—dipping at a regular, but not too acute an angle; that the walls increase in regularity and smoothness as depth is reached; that numerous spurs or feeders, the larger and stronger the better, off-shoot laterally, some of them being sufficiently rich to follow, at least for short distances; that the gouge is feldspathic, soft, and shows more or less decomposition, in which are carried minute particles of quartz, and with which talc and chlorite may or may not be associated; that there is carried a strong gouge seam, more or less soft, wet, and clayey; that slickensides, so called, or rock (whether of either wall, or gänge), with smooth faces, are occasionally seen, showing a supposed movement of material and this movement always in the direction of the strike of the lode; that a regular, or for the average, a wide crevice, with course north-east and south-west, is maintained; that the enclosed mineral vein or veins, show a banded structure, and whenever exposed, the indications are those of strength and continuance; and lastly, that the ore mined (besides possessing other requisite characteristics) is not of so low a grade as to be profitless for working, for a lode, *although a fissure*, may produce poor ore, so poor in fact in the previous metal (for which it

chiefly mined),* that except under the circumstance of being enabled to utilize its lead and copper, or any other containing mineral, it would not pay to open, or after a sufficient test of value has been made, to continue longer its development.

Seventh. That frequent tests of the value of the ore mined be made, and its various (and perhaps varying) qualities ascertained, this with the object, not simply to know if ore of a sufficient richness to pay, is produced, but to decide upon the best mode of treatment, or if the ore is for sale, what its value is.

Eighth. That not only a thorough system of working be adopted, but that there be studied economy in the prevention of waste, economy in working to its fullest extent the mine in charge, particularly as there are always certain expenses incurred, that (whether the production is a quarter or half less, or double) are the same, or are but very little less or but slightly increased as the case might be; economy in thoroughly utilizing everything, whether of what is purchased, or of what is produced; economy in every office expense, in the salaries of officers, and the issue from the Board of sound practical orders to its agent or agents; and in fact, economy in every thing, under every circumstance, and how and where it may be found possible to practice it, to the end that the mining operation and management shall be so entirely a success, as to be, to all interested, gratifying and satisfactory.

Ninth. That correct returns of product, expense, assets and liabilities be always made, and at such regular intervals, as the best sense of the management, or Board, shall determine; and

Tenth. That the interest and rights of the Shareholder be acknowledged, and his receipt to an *honest* dividend assured.

If what has been suggested be followed in the selection of a mining property, and the carrying out of a comprehensive system for working (always of course modified to suit the peculiar circumstances of each mine,) be adopted, I assert that failure in mining would not only be the exception, but would scarcely be known, and instead of speculative (bearing and

* There are in Colorado a large number of gold and silver lodes, whose value is so small, ranging from a few pennyweights to three-quarters of an ounce of the former, and 10 to 30 ounces of the latter, that they have always to the present been classed as low grade, and, until their base metals (chiefly copper in the first, and lead in the latter instance) can be made available, considered valueless; but with this coupling condition, viz., that the latter remains only a fact, until competition (lessening the expense of mining) and the completion of present railways in course of construction (reducing the cost of transport to works), the latter particularly, shall insure to owners a profit from mining, by making available not only the lodes containing gold and the per cent. of lead and silver, but copper, carried in the ore mined.

bulling stocks, and making dishonest fortunes, often out of those who can ill afford to lose,) that legitimate mining would become the rule, a sure means of remuneration to all, and a fortune to many instead of to few who now invest.*

MINERALS.

The variety and value of the minerals of Colorado are everywhere beginning to attract more than ordinary attention. That this should be, is not surprising, when considered that up to the present the production of the precious metals has aggregated from this Territory nearly \$70,000,000.

The following are the names (with their character, and localities where found) of some of the most important of the minerals discovered in Colorado, viz. :—

Gold.—Exists in the granitic, porphyritic, and quartzose rocks, being mined from lodes or veins, where it is intimately associated with the sulphurets of iron, copper, lead, zinc, antimony, and arsenic; has been frequently found native; rarely crystallized; is largely produced from alluvial washings (gulch and placer)—the principal localities where mined being, Left-Hand, James Creek, and Four Mile, in Boulder County; the "Patch," and Russell, Spring, Willis, Gold Run, and numerous other gulches in Gilpin County; Clear Creek, which includes Spanish Bar and Empire, in Clear Creek County; the "Blue," "Stillson's Patch," and French, Nigger, Hoosier, and other gulches, in Summit County; the Platte Washings at Hamilton and Fair Play in Park County; California, Pan Handle, Iowa, and Cash Creek gulches, and the "Bars" of the Arkansas River, in Lake County—has been observed metallic, imbedded in quite large grains, in cubes of iron pyrites and crystals of magnetic iron, mined from the Hattie Jane and Yankee Blade lodes, Granite District; and supposed to exist, in part or wholly, as a double sulphide (late facts and experiments tending to support this idea) in several of the mines, where deep workings are carried on near Black Hawk, Central, and Nevada.

Silver.—Occurs native in the form of small tangled wires and grains, sometimes as arborescent coatings; contains occasionally a small workable per centage of gold; is found as a sulphide in sulphide of lead; exists antimonial, arsenical, and bismuthic;

* This result, although more or less certain as regards mining in all countries, is, on account of the higher average class of ore mined very much more likely to be realized in Colorado than elsewhere.

also as a chlorid and chloro bromiæ; is frequently met with, assuming (as in the celebrated Terrible and other noted mines near Georgetown) the ruby, black, and brittle sulphuret character—some specimens of the two latter yielding 68 and 75 per cent. of pure silver.

Copper—Has been frequently found native in the moss or dentritic form; occurs as a carbonate (green and blue) in the malachite lode near Bear Creek; in the Champion, Coyote, and Freeland lodes, Trail Run Districts; Caribou lode, Grand Island; and in numerous of the silver mines of Georgetown, the Argentines and Snake River Districts; also as a yellow sulphuret and carbonate, (carrying but little antimony,) in a newly discovered lode near Canon City in Southern Colorado; is frequent too as a sulphuret and chalcopyrite, assuming permanency in most of the gold and many of the silver mines below water level, where it carries a large per cent. of both of the precious metals; has been occasionally found as a tennantite and erubescite, the former when seen, being finely crystalized; also as grey, variegated, octahedral, tetrahedrite, tenorite near Central, and as chrysocolla or silicate in the Champion lode, Trail Run District; and in a lode (name unknown) Spanish Bar District, as a sulphate; and in the Liberty lode near Bear Creek, and several of the lodes in Sugar Loaf District, as a glance.

Lead—Is seldom found native, but when noticed on one occasion was in grains and wires, attached to partially decomposed galena; occurs as a sulphuret in many of the gold and silver mines, sometimes beautifully crystalized, the Glennan, Running, Black Hawk, Delaware and Calhoun lodes in Russell District, and the Mountain Desert, Forks, Jones, and other lodes in Nevada District, having shown some fine specimens; the Whale lode in Spanish Bar District, and the McClellen and other lodes of Georgetown in Clear Creek County, have produced large quantities of a rich granular variety, carrying frequently 1 to 11 per cent. of silver; has been found, but only occasionally, as an oxyd.

Zinc—Exists as a sulphuret in many of the gold and silver mines, being generally more or less rich in the precious metals; is very common in the upper districts of Clear Creek, and in the Coaley lode of Enterprise, and Black Hawk, Delaware, and Calhoun lodes of Russell District, Gilpin County, it occurring in the latter lode in chalcedony, producing specimens that might be easily mistaken for moss agates.

Iron—Is found very common as a bi-sulphuret, frequently crystalized and massive, but always carrying more or less gold,

also silver, in chemical and mechanical combination ; some fine polished specimens, with truncated corners, have been produced of this last character from a mine owned by a Mr. Verden, on James Creek, while one special, perhaps exceptional, specimen beautifully intermixed with brittle silver from the Kingston lode, is to be seen in the Miners and Mechanics Institute, of Central City ; is very abundant as magnetic pyrites, and as micaceous and specular, on Elk Creek and the St. Vrain ; occurs as red, brown, and yellow ochres, and as a jaspery clay in and near the surface of many of the gold bearing mines, but is found more valuable as a red and brown hematite, and as bog ore near the Bellemonte furnace, and at Golden ; also in numerous localities, both on the plains and in the mountains, as spathic and titanite leucopyrites, magnetic, mesitine spar, thomaite, blue iron earth, and meteoric.

Coal.—Brown or ligneous, existing in veins (vertical and more or less horizontal) 3 to 12 and 13 feet thick, being mined extensively at Golden, north along the base of the mountains to Boulder, and at Erie ; has been supposed will be discovered bituminous, although not yet known to exist ; is found in southern Colorado, near Canon city, very hard, clear, and free from sulphur ; also in the South Park, with the smooth, shiny, clean appearance of cannel ; one vein, within a mile of the McGlaughlin Ranch, showing 6 feet thick ; and in the Middle Park as an albertine, reported upon by Professor Denton, as outcropping over an extensive area, and laying in veins 3 feet wide.

Fire Clay.—Is abundant at all the coal banks of Boulder, Erie, Ralston, Golden, Canon, and of the South and Middle Parks ; is arenaceous, of various thickness, color, and quality ; also fossiliferous, and while sometimes refractory, is nearly free from impurities, being often of the finest material, and carrying but little iron.

Limestone.—Is found white of the carboniferous age, cropping out in large ledges along the base of the Mountains, embracing Mount Vernon, Golden and Boulder Cities ; exists as a variety known as Gibraltar Marble, discovered by J. ALDEN SMITH, near Idaho, Clear Creek County ; also as blue, striped, variegated, granular, magnesian, lithographic and cherty ; is sometimes intercalated with gypsum.

Sandstone.—Is abundant everywhere along the base of the mountains, being found dark red (ferruginous), white, freestone, grit, sometimes greenish yellow (argillaceous), and nodular.

Baryta.—Occurs as a sulphate, or heavy spar, with quartz and zinc, being found in many of the mines of Gilpin and Clear Creek Counties, and in the Equator, Ypsilanti, and Whale lodes

of Hall Gulch near the range ; exists massive in large veins on the South Boulder, and in extensive beds near Golden.

Fluor Spar.—Is found massive (white, green, pink, and purple,) in large metalliferous veins near Bear Creek ; occurs frequently in the silver mines of Argentine and Griffith Districts ; also in extensive beds along the "Foot Hills," near James Creek ; and in small purple and white crystals in Virginia Cañon.

Asbestos.—Found occasionally with actinolite, but more frequently with hornblende and galena on the head of North Boulder Creek.

Manganese.—Occurs frequently as a per-oxyd and bin-oxyd, but as yet not in sufficient quantity to make mining for it remunerative.

Gypsum.—Is found in beds 10 feet thick in the South Park ; also in fibrous masses, of fair quality—snowy, red, clouded, mottled, foliated, arrow headed, &c.—near Mount Vernon, Cache-à-la-Poudre, and other places. Has been met with sometimes intercalating the limestone.

Alum.—Is found native and feathery ; also as an aluminite, or alum stone, near Mount Vernon.

Salt Springs.—Are numerous in the South Park (south-east of Fairplay,) being sufficiently extensive to supply a very large local demand of the Georgetown, and Central Silver Amalgamating and Chloridizing Works. Owners (Messrs. Hall & Co.) have the conveniences on the spot, by which an average of 10,000 lbs. per day of this very necessary article can be manufactured.

Soda.—Exists, as a carbonate and sulphate, at what is known as the Burdsall Soda Lakes, 12 miles from Denver ; also as a salt at the same, where the quantity available for the manufacture of caustic, carbonate, and bi-carbonate of soda, is estimated at over one billion tons ; is found as a carbonate at the Hot Springs of Idaho, and the Middle Park ; and as a bi-carbonate and chloride of sodium, at the Galen or Doctor Spring, near the New Fountain Colony, in southern Colorado.

MINES AND THEIR FACTS.

From the foregoing I would now naturally be led to give my views and ideas of Colorado mines and mining, occasionally illustrating my remarks by particular instances of richness or poverty of yield ; of economy or waste in expenditure ; of proper or improper working ; of success or failure

in management, &c., &c. But as between a chapter thus devoted, to the exclusion (having no space to include the two subjects,) of one giving the names of all of the principal lodes of Colorado, opened and working—with the district and county in which situated, depth of shaft, length of level, width of crevice, thickness of pay vein, assay value, character of ore, amount of product, &c., &c., together with all facts including comments suitable to the subject—the author has chosen the latter, and made the following alphabetical arrangement,* under proper headings, of the mining counties, districts, and mines, which he hopes will give the British public a more comprehensive and correct idea of the extent and importance of Colorado mines and mining, than it has hitherto possessed—premising, that while sensible all has not been stated, and in some instances not nearly stated, that might have been, he is confident that what he has given, as concise as he has been able, can be relied upon as correct, and the *collected facts* (very many of them at least,) are rather under than over stated.†

* It will be noticed by those who may still have a copy of the author's first pamphlet on Colorado, that the arrangement made here is much superior (admitting of more easy reference,) than was observed in that work, the reader being enabled in the present instance—when desiring information of any particular mine, of which he has the name, district, and county—to refer, with the least loss of time to the place, where the facts are consecutively given.

† The author would take this occasion of asking, as a favour, to be corrected where he has misstated, and hopes that all those who know what are the facts in reference to any mining interest, will communicate with him on the matter; giving at the same time any additional information they may deem important, and believe him not to possess.

BOULDER COUNTY.

CENTRAL DISTRICT.*

AJAX LODGE.—*Shaft*, 25 ft.—*Cre.*, 3 to 4 ft.—*P. V.*, 8 to 14 ins.—*Assay*, † 1 to $2\frac{1}{4}$ ozs., and (by the author *mineral and rock*) $\frac{1}{2}$ to $1\frac{1}{2}$ ozs. G. pr. ton—*Char.*, au. iron and free G. qtz.

Is conveniently situated, and, from the promise it gives, should be further developed to prove value—*Cab. Spe.*, 3.

AMERICAN.—*Shafting*, 146 ft.—*S. Drifts*, 190 ft.—*Cre.*, 3 to 5 ft.—*P. V.*, 20 to 36 ins.—*Assay*, $\frac{3}{4}$ to $1\frac{1}{2}$, and *yield* $\frac{6}{10}$ to $1\frac{3}{10}$ ozs. G. pr. ton—*Char.*, free G. qtz., and dirt.

Is a fine paying mine, conveniently situated, easily worked, and yielding its gold cheaply. All product to date has been sluiced, "headings" and "tailings" being ground in arrastras—*Cab. Spe.*, 21.

* In giving in as condensed a form as possible the facts of mining, and to save space, I have adopted the following abbreviations, viz.:—

Au.—(for) auriferous.

B.C.M.B.—British and Colorado Mining Bureau, Bartholomew House, London.

C.T.—Colorado Territory.

Cab. Spe.—Cabinet Specimen (and with the affixed figure or figures, 1, 2, 3, 4, &c., refers to the number given to the particular specimen of ore taken from the mine in which connection it is here mentioned, and which, as per catalogue in my first pamphlet is assigned a place in the Cabinet of the B.C.M.B.)

Char.—Character.

Carb.—Carbonate.

C.—Copper.

Cre.—Crevice.

Ft.—Feet.

Gov. P. T.—Government Patent of Title.

Ins.—Inches.

P. V.—Pay vein (includes, in a gold lode, the solid and scattered mineral and all free gold quartz, and in a silver lode such portions of rock or gangue supposed to carry sufficient of the sulphurets of silver to pay to treat.

Py.—Pyrites.

Pr.—Per.

%—Per cent.

Qtz.—Quartz.

S. Drifts.—Surface drifts.

S. Levels.—Surface Levels.

S.—Silver.

Sulph.—Sulphuret, (and an additional s.) Sulphurets, (and ed.) Sulphureted.

Se. Spe.—Selected specimens.

Zinc.—Zinc-blende.

† All assays quoted in the present list of Colorado mines are given for the American ton of 2,000 lbs.

BUCKHORN.—*Shaft*, 49 ft.—*Cre.*, 4 to 5 ft.—*P.V.*, 24 to 42 ins.—*Assay*, $1\frac{3}{4}$ to $2\frac{1}{2}$ ozs. G., and 63 to 100 ozs. S. pr. ton, and 19 to $32\frac{1}{2}$ % lead—*Yield*, $\frac{1}{4}$ to $\frac{7}{10}$ oz. G. and 90 ozs. S. per ton—*Char.* au. iron, C. py., and argentiferous galena.*

Is a strong main lode. The containing iron has been occasionally found as a bi-sulphuret; sometimes also (although rarely crystalized and massive. Ore very heavy and solid. Tests by smelting have resulted well—*Cab. Spe.*, 7.

CALEDONIA.—*Shaft*, 22 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 16 to 24 ins.—*Char.*, free G. qtz. and dirt.

Is a fine looking lode. Prospects well in a hand mortar, the ore yielding readily its gold. All surface product would pay to sluice, saving "headings" and "tailings" for mill treatment. Should be actively worked—*Cab. Spe.*, 2.

NOTE.—"Mill treatment," "milled," "stamped," and "treated under stamps," terms that will be sometimes used in the present work, are in Colorado synonymous; and among the miners of this territory refers to quartz, carrying free gold (and often iron and copper pyrites,) being treated in mills, where the process is to crush by stamps and amalgamate in batteries, using quicksilvered copper tables—sometimes called plates.

POTOSI.—*Shafts*, 220 ft.—*Cre.*, 4 ft.—*P.V.*, 20 ins.—*Assay*, 1 to 2, and *yield* $\frac{1}{4}$ to $\frac{1}{2}$ oz. G. pr. ton—*Char.*, au. iron, and free G. qtz., the latter partially decomposed.

Large quantities of the ore of this mine have been treated in the owners mill, but with poor success, it requiring to be roasted and otherwise prepared for pan amalgamation. Three shafts, deepest 120 feet—*Cab. Spe.*, 6.

GOLD HILL DISTRICT.

HORSEFALL LODE.—*Shafting*, 1,350 ft.—*Levels*, 975 ft.—*Cre.*, 3 to 5 feet—*P.V.*, 6 to 18 ins.—*Assay*, $4\frac{3}{10}$ to $14\frac{3}{4}$, and *yield* $\frac{9}{10}$ to $3\frac{9}{10}$ and $5\frac{1}{4}$ ozs. G. pr. ton—*Char.*, free G. qtz., and iron and C. py.

Ore has been variously treated—milled, sluiced, amalgamated, and smelted. $1\frac{1}{2}$ cords (stamped), returned $53\frac{1}{4}$ ozs. G. gross,

NOTE.—The term "cord" in America, is applied to quantity—viz, to the cube contents of anything that can be piled and measured, the cord being equal to 8 feet long, 4 feet high, and 4 feet wide, containing 128 square feet. But while its general adoption as a method for measuring wood is right, its use when applied to determine any given quantity of Ore mined or treated, where weight and value should be given, is most absurd; particularly when considered that a cord of lode material, may be light porous quartz and dirt, or the heaviest of solid ore, will weigh from 4 to 13 and 14 tons, and that when informed that so many cords of such an ore returned, say 5 ozs. gold per cord, it is impossible, unless the nature and character of the product referred to is known, to tell whether the yield was at the rate of 1 oz. or more, or a $\frac{1}{4}$ oz. or less per ton. It is to be hoped, that as all assays of ore are made at so much per ton, that this very absurd way of determining quantity and value, will soon be abandoned, and the older and better method of making returns of product in tons, and at so much value per ton, will be adopted. The author whenever able to avoid the use of the term "cord," and he can approximately (from his knowledge of the product of the mine mentioned,) give quantity and value in tons, will do so.

* All ores in Colorado carrying galena, being silver bearing, the usual prefix "Argentiferous" will not in any further mention or description of their character, be used.

and 12 tons $64\frac{1}{2}$ ozs. ; while sluicing the men, in one instance, made \$60 per day each. A total of 2,800 tons gave a gross yield of \$140,000, averaging $2\frac{1}{2}$ ozs. G. pr. ton. Ten shafts, deepest 220 feet—*Cab. Spe.*, 68.

NOTE.—All Ore values, when returned in dollars, is *coin*, not currency ; but where separately **known**, either for gold or silver or for both, the rendering is made in troy ounces.

HOOSEIER—*Shafting*, 170 ft.—*Levels*, 50 ft.—*Cre.*, 5 to 8 ft.—*P.V.*, 8 to 26 ins.—*Assay*, 1 oz. G. and 125 to 780, and (*se. spes.*) 5,738 ozs. S. per ton, and 8 to 15 per cent. lead—*Yield*, 31 ; 46 ; 187, and 213 ozs. S. per ton—*Char.*, gray C., zinc, and galena, carrying in a hard white quartzite, native, ruby, and the black Sulpts. S.

Shows an immense surface outcrop, indicating a lode of more than ordinary strength. 8 tons of Ore (amalgamated) returned 1,704 ozs. S. gross ; $5\frac{1}{2}$ tons, 1029 ozs., and 3 tons 504 ozs. ; while sold for smelting, \$60 to \$135 per ton have been realized. Average of all product treated and sold \$132 per ton. Is the southwest extension of the Alaska lode. Has been examined and reported upon by the author. Two shafts, deepest 140 ft.—*Cab. Spes.* 58 are very fine, No. 58A showing the real and peculiar character possessed by the ore of this mine.

U. S. BANK.—*Shaft*, 60 ft.—*Cre.*, 5 ft.—*P.V.*, 9 ins.—*Assay*, 122 to 550 and (*se. spe.*) 3,948 ozs. S. per ton—*Yield* (treated at the Excelsior Works, Black Hawk), 138 ozs. S., and (smelting ore sold), \$340 pr. ton—*Char.*, hard white quartzite, carrying ruby and the black sulpts. of S.—*Cab. Spe.*, 59.

WILLIAMS.—*Shafting*, 310 ft.—*Levels*, 70 ft.—*Cre.*, 3 ft.—*P.V.* 18 ins.—*Assay*, $2\frac{3}{10}$ to 5 ozs. G. and 60 ozs. S., and *yield* $1\frac{1}{2}$ to $1\frac{1}{2}$ and 5 ozs. G. pr. ton—*Char.*, iron and C. py., and galena, carrying the sulpts. of S.

Is an old discovery. 84 tons of ore (stamped) returned 105 ozs. G. gross, and 175 tons, 154 ozs. netting \$8 to \$10 per day to each hand employed, while 9 tons gave a total of 45 ozs. G. Four shafts, deepest 130 ft.—*Cab. Spe.*, 67.

GRAND ISLAND.

CARIBOU LODE.—*Shafting*, 527 ft.—*Levels*, 885 ft.—*Cre.*, 5 ft.—*P.V.*, 6 to 28 ins.—*Assay*, 127, 470, 1,320, and *yield* 105, 256, 873, and 1,026 ozs. S. pr. ton—*Char.*, carb. C., galena (very little), black sulpts. of S. (partially decomposed), brittle S. and S. glance, carried in a gange of hard ferruginous qtz. and feldspar.

Is worked to very great profit. Sold 428 tons of ore (Sept. 1st, 1870, to June 1st, 1871), returning \$77,576 net. At present the owners (Messrs. Breed and Cutter) of the west 700 ft., roast

and amalgamate in their own works at rate of 15 to 20 tons of ore per day, which return, according to the grade (1st or 2nd class), worked, \$750 to \$1,500. During first 9 months of working all 3rd class ore was piled, which is now made available. The Caribou Mining Company own and work the east 700 ft. All 2nd class ore to the present has averaged 99 ozs., and 1st class 538 ozs. S. pr. ton, the last being in the proportion of one to ten of the total product. Have let a contract for running a tunnel 750 ft. in length to cut this lode at a depth of 350 ft. Employ 55 miners. Has produced some fine specimens of wire silver. Gov. P. T. obtained, granting 1,400 ft. Four shafts, deepest 290 ft.—*Cab. Spe.*, 652.

SHERMAN—*Shaft*, 85 ft.—*Levels*, 130 ft.—*Cre.*, 3 to 7 ft.—*P.V.*, 7 to 13 ins.—*Assay*, 87, 818, 296, and *Yield* 45, 106 and 308 ozs. S. per ton.—*Char.*, highly mineralized qtz., showing brittle S.

Is actively worked and reported paying.—*Cab. Spe.* 651.

TROJAN.—*Shaft*, 80 ft.—*Level*, 20 ft.—*Cre.*, 4 ft.—*P.V.*, 3 to 18 ins.—*Yield*, 1 to $1\frac{1}{2}$ ozs. G. per ton.—*Char.* Au. iron py. and qtz.

Ore treats easily. Keeps 12 stamps constantly supplied milling 2nd class product. Is actively worked and paying.—*Cab. Spe.* 649.

WARD DISTRICT.

COLUMBIA LODGE.—*Shafting*, 616 ft.—*Levels*, 572 ft.—*Cre.*, 3 ft.—*P.V.*, 4 to 18 ins.—*Assay*, $1\frac{3}{4}$ to $5\frac{1}{2}$ ozs. G. and 16 to 49 oz. S. per ton, and 11 to 26 per cent. C.—*Yield*, \$15 to \$90 G. and S. per ton.—*Char.*, galena, au. iron py., and black oxyd. C.

A four day's run on Ore, using 50 stamps, returned 350 ozs. G. gross; and three separate lots (200, 49, and 108 tons), subsequently treated, 1,428 ozs. Good results in gold have always been obtained from treating surface quartz. Claim No. 10 West, owned by the Ni-Wot Gold Mining Co., and comprising only 100 feet of extent, has yielded alone (to say nothing of other portions of this *great* lode), over \$100,000 in G., losing all the S. and C., but which as soon as saved in tailings, returned 20 ozs. G. pr. day by shaking tables, and showed 79 oz. S. pr. ton, and 32% C. Is opened on the surface for 3,000 ft. with 9 shafts sunk, deepest 180 ft. 1st class Ore sold for Smelting, has realized \$90 per ton, chiefly on account of the C. carried. Is owned by several companies.—*Cab. Spec.*, 33 are very fine.

COMET.—*Shafting*, 235 ft.—*Levels*, 72 ft.—*Cre.*, 5 ft.—*P.V.*, 6 to 14 ins.—*Assay*, \$100 to \$215 G. and S. (also 7 to 18% C.) and *yield*, \$50 to \$130 G. and S. per ton.—*Char.*, Free gold qtz., iron py., galena, zinc, and black oxyd. of C.

Is the east extension of the Columbia lode, showing essentially the same character of Ore. In sinking 30 ft., in one of the shafts, \$4,000 was taken out. Has been opened for nearly 2,000 ft. on the surface. Deepest shaft, 75 ft.—*Cab. Spe.*, 34.

STOUGHTON.—*Shafting*, 157 ft.—*Levels*, 85 ft.—*Cre.*, 4 ft.—*P. V.*, 26 ins.—*Assay*, 3 to 8, and 33 ozs. G. and 6 to 10 ozs. S., (also 8 to 18% C.) and *yield*, 4 ozs. G. and \$90 to \$150 pr. ton—*Char.*, au. py. and black oxyd. of C., with galena, slightly intermixed.

Is indisputably a fine mine. 35 tons of Ore sold for smelting, realized \$4,200 gross. In sinking last 20 ft. in main shaft, carried down 5 by 16 ft on the vein, 53 tons of 1st and 80 tons of 2nd class Ore was returned, respectively averaging in value \$130, and 4 ozs. G. pr. ton, the last, as per tailings, showing 6 to 8 ozs. silver, and 8% C. Three shafts, deepest 97 ft.—*Cab. Spe.*, 37.

NOTE.—The three lodes—Columbia, Comet, and Stoughton—described above, have sufficient per ton value for gold, silver, and copper, in connection with extent and producing power, that would give character, and raise to a high estimation any mining district. A dozen companies could find territory enough on these lodes, to actively and profitably employ them for generations in extracting their riches, longer at least than any member of either could expect to live. Then why cannot "Ward" awake from her present slumber; and, as she has shown what she possesses, do for herself, (*if only in a small way*), what she is expecting and waiting for others—*viz.* Capital—to do for her. There is no surer fact than that her reward (as it would be the reward of anyone assisting her), will be in proportion to the energy and judgment displayed in working her own rich mines.

CLEAR CREEK COUNTY.

CASCADE DISTRICT.

ANDY JOHNSON LODE.—*Shaft*, 50 ft.—*S. Drift*, 30 ft.—*Cre.*, 4 to 6 ft.—*P. V.*, 3 to 24 ins.—*Assay*, 75 ozs. S. pr. ton.—*Char.*, galena, zinc, carb. C., and black sulpts. S.

Is opened, more or less, on the surface for nearly four miles, with the Pulaski, General Grant, Hartford, Charter Oak, Kremlin, Silver Bluff, and Alps lodes, as extensions taken up and recorded, with four others, names unknown (but making *eleven*) reported secured. Shows wherever exposed, great strength of crevice, and a vein character of ore that promises to return well for working. Should be most thoroughly opened, and made as immediately productive as possible.—*Cab. Spe.*, 795.

KREMLIN.—*Shaft*, 39 ft.—*Cre.*, 5 ft.—*P. V.*, 18 ins.—*Assay*, 281, and (se. spe.) 1,353 ozs. S. pr. ton.—*Char.*, galena, zinc and sulpts. S.

Is one of the West extensions of the great Andy Johnson lode. Shows well. Ore piled.—*Cab. Spe.*, 662.

EMPIRE DISTRICT.

NATIONAL BANK.—*Shaft*, 72 ft.—*Levels*, 25 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 6 to 16 ins.—*Assay*, (by B.C.M.B., *coarse-grained galena*) 9½, 13½, 24, and 27 ozs.; (*fine-grained galena, and hard quartzite*) 39, 43, and 60½ ozs.; (*mixed mineral and black quartz*) 94 and 99 ozs., and (*S. sulpted. gange*) 586 ozs. S. pr. ton, with 20, 34, and 41% lead.—*Char.*, galena, zinc, manganese, sulpts. S., feldspar and qtz., the latter much stained with metallic oxydes.

Is a strong main lode, and capable of producing large quantities of very fine ore. Gov. P.T. applied for. Extent 1,500 ft. Has been examined and reported upon by the author. Ore piled.—*Cab. Spes.* (a large number, some *very fine*) 302.

OREGON.—*Shaft*, 11 ft.—*Cre.*, 3 ft.—*Assay*, 8, 14, and 30 ozs. S. pr. ton.—*Char.*, S. bearing feldspar and qtz., showing stain of the metallic oxydes.—*Cab. Spe.*, 303.

PHILADELPHIA.—*Shaft*, 50 ft.—*Cre.*, 4 ft.—*P.V.*, 6 to 28 ins.—*Assay* (by B.C.M.B.), 6 and 16 ozs. S. pr. ton, and 8% lead.—*Char.*, black quartzite, intermixed with galena, manganese, and iron.

Shows a strong crevice, and a high producing power. Should be actively worked. Ore piled.—*Cab. Spe.*, 300.

GRIFFITH DISTRICT.

ASTOR (WILLIAM B.).—*Shafting*, 165 ft.—*Cre.*, 4 to 6 ft.—*P.V.*, 14 to 30 ins.—*Assay*, 77, 308, 847, and *yield* \$165, \$285, and \$500 pr. ton.—*Char.*, S. sulpted. rock.

Carries a highly valuable ore. Ten tons (roasted and amalgamated) returned \$1,650 gross, and 5,000 lbs. \$1,250; while other lots yielded \$150 to \$285 pr. ton, and 1,200 lbs. at rate of \$1,600. Four shafts, deepest 75 ft.—*Cab. Spe.*, 383.

ÆTNA.—*Drift*, 110 ft.—*Cre.*, 4½ ft.—*P.V.* 5 to 16 ins.—*Assay*, 100, 131, and (se. spe.) 1,663 ozs. S. pr. ton.—*Char.*, galena, zinc, iron, and C. py. and gray qtz.

Shows well, 1,000 lbs. of ore sold realizing \$315 net. Situation, admirable for working. Is the supposed west extension of the great Comet lode.—*Cab. Spe.*, 665.

AMAZON.—*Drift*, 190 ft.—*Cre.*, 5 ft. *P.V.*, 6 to 13 ins.—*Assay*, (author's office, C.T. mineral and gange), 17½, 19 to 48 ozs. S. pr. ton.—*Char.*, galena, and zinc, carried by a gange composed chiefly of feldspar.

Is a strong main lode, showing well. Has been reached by a cross cut, 40 ft.—*Cab. Spes.*, 666.

ANTELOPE.—*Shaft*, 50 ft.—*Levels*, 142 ft.—*Cre.*, 3 to 6 ft.—*P.V.*, 4 to 8 ins.—*Yield*, 177, 310, 330 to 479 ozs. S. pr. ton, and 35, 47, and 58 % lead.—*Char.*, Stromeayerite, gray C., iron py., zinc, and galena.

Has been reached by a cross cut 30 ft., through which active work is carried on. 1st class ore return 310 to 479 ozs. S. pr. ton, and 2nd class 177 ozs. Employs 14 men, who are netting \$13 each pr. day for owners. Is rapidly proving a most valuable mine—*Cab. Spe.*, 710.

BEECHER (HENRY, W.)—*Shaft*, 60 ft.—*S. Drifts*, 128 ft.—*Cre.*, 4 to 8 ft.—*P.V.*, 7 to 30 ins.—*Assay*, 27, 36, and 53 ozs. S. pr. ton, and 28 to 54% lead—*Char.*, galena, iron py., and zinc.

Gives every evidence of a strong main lode, possessing great strength of crevice, and a high producing power. Carries entirely a smelting ore, and requires works of this character to make it fully valuable to work. Ore piled. Has been examined and reported upon by the author.—*Cab. Spes.*, 418.

CASHIER.—*Shafting*, 360 ft.—*Levels*, 250 ft.—*Cre.*, 3 to 5 ft.—*P.V.*, 3 to 22 ins.—*Assay* (by B.C.M.B., galena), 80½ ozs., (zinc), 80 ozs., and (py. iron), 32 ozs. S. pr. ton, with 18, 22, and 39% lead. (Other assays show 52 to 136 ozs. S., and se. spes., 346 to 998 ozs. S. pr. ton)—*Yield*, 38, 56, 63, 127, and 175 ozs. S. pr. ton.—*Char.*, heavy galena, zinc, iron py., feldspar, and white qtz., carrying the sulpts. of S.

Is a strong main lode. $\frac{3}{4}$ ton of ore treated, returned at rate of 553 ozs. S. pr. ton. All 2nd and 3rd class ores are made available at the local works in Georgetown, the latter, concentrated by the "Krom Dry Process," being made (22 oz. crude ore) to yield 90 ozs. S. pr. ton. Main shaft carries at this present a heavy vein of very superior ore. Was awarded at the Annual Territorial Fair, held at Denver last year, the 1st premium for largest unbroken mass of lead ore, and 1st premium also for largest and best variety of S. ore, the awards consisting of silver medals. Absorbs the Elgin lode. Gov. P.T. obtained. Length, 1,400 ft. Three shafts, deepest 225 ft.—*Cab. Spe.*, 391.

CRESCENT.—*Shaft*, 31 ft.—*S. Drifts*, 40 ft.—*Cre.*, 2½ ft.—*Assay*, (by B.C.M.B.) 36 to 176 ozs., and (by A. D. Forster, se. spes.) 320 to 4,832 ozs. S. pr. ton, with a trace of G.—*Yield*, 64 ozs. pr. ton—*Char.*, S. sulpted. qtz.

This lode promises very fair. 4 tons (half Nyanza lode ore,) roasted and amalgamated, returned 256 ozs. S. gross. Has been examined and reported upon by the author. Is owned by one English and one American company, the former proposing to immediately commence active development.—*Cab. Spe.*, 389.

CLIFT.—*Shaft*, 147 ft.—*Level*, 40 ft.—*Cre.*, 3½ to 5 ft.—*P.V.*, 7 to 20 ins.—*Assay*, 28, 60, 154, 710 to 903, and *yield*, 96, and 504

ozs. S. pr. ton.—*Char.*, galena, zinc, decomposed granular feldspar, and white qtz., carrying the sulpts. S., and S. glance.

Is a *very* promising mine. 81 tons treated, returned 7,776 ozs. S. gross. Ore piled. Has been examined and reported upon by the author.—*Cab. Spe.*, 467.

COLDSTREAM.—*Shafting*, 200 ft.—*Levels*, 260 ft.—*Cre.*, $3\frac{1}{2}$ to 6 ft.—*P.V.*, 4 to 20 ins.—*Assay*, 111, 249, 521, and (se. spes.) 932, and 1,243 ozs. S. pr. ton, and 42 % lead.—*Yield*, 120, 390, 441, and 849 ozs. S. pr. ton.—*Char.*, galena, zinc, iron py., ruby and brittle S. and gray C., carried by a ferruginous feldspar and qtz. gänge.

Is actively and well worked. 34,000 lbs. of ore (treated at the local works of J. O. Stewart,) gave 7497 ozs. S. gross. All smelting ore is sent forward to Liverpool and sold. Average value of all product, 200 ozs. S. pr. ton. Owners realize \$10,000 per month profit from workings. Total yield of mine, from commencement of work (embraced within the first year of being opened), \$210,000. A tunnel is being run, which in a length of 1,200 ft., will centrally reach this mine 850 ft. below the surface. Was the original Maine lode, but name changed in making application for Gov. P.T. *One item more*, the last to hand, viz. :—owners forwarded last month (July), 40 tons of ore to the Royal Prussian Works at Freiberg, running by sample Assay, 450 ozs. S. pr. ton.—*Cab. Spe.*, 479.

NOTE.—At the moment of going to Press, the returns from this 40 tons of ore is published, showing, by Smelters' Assay, 514 ozs. S. pr. ton, and 54 % lead. Also that the crude ore of this mine (before sorted into classes) averages 295 ozs. S. pr. ton, and 22 % lead.

COMET.—*Shafting*, 260 ft.—*S. Dfts. and Levels*, 235 ft.—*Cre.*, 4 to 20 ft.—*P. Vs.*, (several) 1 to 2 ins., and *pay streak*, $1\frac{1}{2}$ to 3 ft.—*Assay*, 40, 90, 165, and (author's office, C.T., *galena and rock*) $20\frac{1}{2}$, (*decomposed crevice material*) $189\frac{1}{2}$, and (*decomposed S. sulpts.*) 379 to 656, and (as returned by the Territorial Assayer) 1,540, and 2,303 ozs. S. pr. ton.—*Yield*, 86, 92, 170, and 211 ozs. S. pr. ton.—*Char.*, galena, zinc, iron and C. py., carrying the sulpts. S.

Possesses great productive power and value. 34,630 lbs. returned 2,071 ozs. S. gross, 24,900 lbs. 1,197 ozs., and 4,000 lbs. 416 ozs. Some hands, sorting over the dump for ore, formerly thrown away in ignorance of possessing any value, have made \$9 to \$11 pr. day. Is opened on the surface for over 2,000 ft. showing wherever sunk upon, a strong main vein. *Has been examined and reported by the author.* A Gov. P.T. has issued for 800 ft. of the west half of the lode. An English syndicate has the first refusal of this mine, who doubtless on becoming owners will soon actively work it.*—*Cab. Spes.*, 438.

NOTE.—The Author, at the request of this syndicate, drew a plan, and made estimates, accompanied with tables, showing contract work, amount and value of ore extracted, expenses, &c., &c., for one year of *active* working of this lode, which he believes, if adopted as the system of development to be carried out, will satisfy in its results all interested in the proposed new purchase.

COURTNEY.—*Side Hill Out*, 15 by 20 ft.—*S. Drift*, 50 ft.—*Cre.*, $2\frac{1}{2}$ to $3\frac{1}{2}$ ft.—*P.V.*, 2 to 8 ins.—*Assay*, 52, 109, and (author's office, C.T., crevice dirt) 67 ozs. S. pr. ton—*Char.*, decomposed zinc and ferruginous qtz., the latter carrying some sulpts. S.

Has been examined and reported by the author. Should be further opened to prove its probable value.—*Cab. Spe.*, 672.

DIVES.—*Shafting*, 82 ft.—*Levels*, 140 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 2 to 7 ins.—*Assay*, 47, 59, 92, (se. spes.) 467 and (by B.C.M.B.) 42, 49, 57, and 97 ozs. S., pr. ton—*Char.*, galena, zinc, and iron py., carrying the sulpts. of S.

Shows well, and is a fine mining interest.—*Cab. Spe.*, 670.

DUNDERBURG.—*Shaft*, 39 ft.—*Level*, 30 ft.—*Cre.*, $4\frac{1}{2}$ ft.—*P.V.*, 4 to 6 ins.—*Assay*, 40, 88, 210, and (author's office, C.T., mineral and rock,) $20\frac{1}{2}$ and 52 ozs. S. pr. ton—*Char.*, galena, zinc, and iron py., carried in a S. sulpted. quartzite and feldspar gangue.

Is a strong main lode, promising to open out well, and with development to return largely. Has smooth regular walls, which with crevice material, course, dip, country, character, &c., gives every evidence that assures a mine. Gov. P.T. applied for. Extent, 3,000 ft.—*Cab. Spes.*, 669.

DUNEDEN.—*Shaft*, 25 ft.—*Drift*, 34 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 2 to 6 ins.—*Assay*, 25, 105, and (author's office C.T., crevice dirt), 67 oz., and (*galena and carb C.*), 226 ozs. S. pr. ton—*Char.*, galena, zinc, iron py., and carb. C.

Shows well, possessing great strength of crevice. Is reached by a cross cut 18 ft., and by a tunnel 120 ft., the latter cutting the lode 100 ft. below the surface. Gov. P.T. obtained, granting 1,600 ft. Has been examined and reported upon by the author—*Cab. Spe.*, 463.

EMMET (ROBERT).—*Shafting*, 80 ft.—*Levels*, 20 ft.—*Cre.*, 3 to 13 ft.—*P.V.*, 2 to 10 ins.—*Assay*, 48, 144, 152, and (se. spes.) 385, and 424 ozs. S. pr. ton, and 38 to 42% lead—*Yield* 133 and 145 ozs. S. pr. ton—*Char.*, galena, iron py., and gray C., the latter carrying a high per centage of S.

Is a fine lode, and should be worked. Smelting ore (sold to the old Brown Co.) has realized for both lead and S. \$30 to \$55 per ton.—*Cab. Spe.*, 399.

ELIJAH HISE.—*Shafting*, 103 ft.—*Cre.*, 4 to 6 ft.—*P.V.*, 3 to 13 ins.—*Assay* (by B.C.M.B.), 148 ozs., and (se. spes.) 577, 1,030, and 1,621 oz. S., and by other assayers 987, 992, and 1,274 ozs. S. pr. ton.—*Yield*, 322 ozs. S. pr. ton.—*Char.*, galena, carb. zinc, S. glance, brittle S. and cuprous sulpts. and chloride S.

Average return of ore, very high. The carbonate of zinc in this lode shows in fine white and grayish crystalline incrustations.—*Cab. Spe.*, 392.

EQUATOR SLIDE.—*Yield*, 282, 290, 598, and 1,082 ozs. S. per ton.—*Char.*, galena, zinc, gray C., brittle and black sulpts. S., and S. glance.

This is not, strictly speaking, a lode; but (as its name indicates) a supposed *slide* from some great "fissure" or "mother" vein above on the mountain. Extent 500, by about 350 ft. Bed rock (so-called) is very uneven and water worn, as if in the *long* past it had been the bed of some old water course. Ore often found boulder shaped, mixed with washed boulders and sand. Is usually called by the miners "float ore," these having pretty generally shown its extent by numerous cross cuts, surface drifts, trenches, &c. Large quantities of this "slide" or "float" ore have been mined, or more properly dug, sorted from the debris, and sold, realising in the aggregate very largely, with no doubt, but that thousands of tons yet remain equally *available*, and worth, on an average, not less than \$500 per ton.—*Cab. Spe.*, 672.

EQUATOR.—*Shafting*, 690 ft.—*Levels*, 599 ft.—*Cre.*, 4 to 10 ft.—*P. V.*, 2 to 24 ins.—*Assay*, 100, 168, 252, 320 ozs., and (*stephenite*,) 735, 1,026, 3,836, and 4,950 ozs. S. pr. ton—*Yield*, (according to class or grade,) 25, 119, 168, 560, and 1,000 ozs. S. pr. ton—*Char.*, galena, iron py., and zinc, carrying with the gangue (a decomposed feldspar, talc, and qtz,) ruby and brittle S., native S., and S. glance.

This lode is profitably worked under lease to 4 companies. Has five shafts, deepest 310 ft. 1st class Ore yield 300 to 1,000 ozs., 2nd class 100 to 250 ozs., and 3rd class 25 to 69 ozs. S. pr. ton. 137 tons (roasted and amalgamated) returned (*on 80% of value only*) 19,976 ozs. S. gross; 49 tons, 6,974 ozs., and 374 tons, 47,498 ozs., while 18 tons 1st class ore sold for \$9,900. Total value of product in 7 months \$82,282. The large refuse dump at this mine is being water sluiced, profitably saving large amounts of good 1st and 2nd class Ore. Has always paid, whether worked under company ownership or leased, sometimes returning to owners \$10,000 per month net. Is cut by the great Marshall Tunnel 716 ft. from mouth, and 360 ft. under discovery.—*Cab. Spe.*, 444.

FEDERAL.—*Shaft*, 50 ft.—*Level*, 30—*Cre.*, 3 to 4 ft.—*P. V.*, 4 ins.—*Assay*, 78, 580, (se. spe.,) 1,904 ozs., and *yield*, 206 and 1,388 ozs. S. pr. ton—*Char.*, galena and sulphide of S.

Some Ore recently sold, realized the very large sum of \$1,804 pr. ton.—*Cab. Spe.*, 674.

FLORA MCLAIN.—*Shaft*, 48 ft.—*Cre.*, 2½ to 3 ft.—*P. V.*, 5 to 7 ins.—*Assay*, 46, 113, to 354, and (se. spes.,) 539 and 1,311 ozs. S. pr. ton, and 39% lead—*Yield*, 100 ozs. S. pr. ton—*Char.*, iron and C. py., galena and sulpt. S., carried intermixed in a feldspar and qtz. gangue.

Is well situated for working. 3,400 lbs. of Ore (amalgamated) returned 169 ozs. S. gross, showing 30% lead.—*Cab. Spe.*, 483.

GRIFFITH.—*Shafting*, 319 ft.—*S. Dfts. and Levels*, 357 ft.—*Cre.*, 3 to 21 ft.—*P. V.*, 6 to 32 ins.—*Assays*, 32, 34, 93, and (se. spes.) 308, and 924 ozs. S. pr. ton, and 14 to 32% lead—*Yield*, 49 and 74 ozs. S. pr. ton—*Char.*, galena, zinc, carb. C., decomposed feldspar, and ferruginous qtz.

Is a large main lode, traceable by a massive outcrop for over 5,000 ft. Has been taken up and recorded under various extension for 9,500 ft., of which 2,100 ft. (by numerous surface openings and embracing the present Griffith lode), have been developed. The various workings show 9,000 tons of ore in sight with over 1,000 tons piled ready for treatment—*Cab. Spe.*, 456.

MAMMOTH.—*Level*, 90 ft.—*Cre.*, 3 to 4½ ft.—*P. V.*, 3 to 16 ins.—*Assay*, 100, 187, to 714, and (by B.C.M.B.), 240 and 382 ozs. S. pr. ton, with 42% lead—*Char.*, galena, zinc, iron py., gray C., and ruby and brittle S.

Is producing large amounts of very fine ore that returns well to owners. The well known Brown lode, is the west extension of this mine. Has been reached by a cross drift tunnel cutting the lode 176 ft. from mouth, and 119 ft. below the surface.—*Cab. Spe.*, 385.

MENDOTA.—*Shafting*, 135 ft.—*S. Dfts. and Levels*, 137 ft.—*Cre.*, 3½ to 5 ft.—*P. V.*, 6 to 22 ins.—*Assay*, 19, 44½, 52 to 72, and 129 ozs. S., and (by B.C.M.B., *iron py. and galena*), 67 ozs. (*pure galena*,) 30 ozs., and (*pure zinc*,) 160 ozs. S. pr. ton—*Yield*, 48, 52, and 58 ozs. S. pr. ton, and 51% lead—*Char.*, galena, zinc, iron py., and occasionally Brittle S.

Shows a strong crevice carrying between well defined walls, an ore vein truly massive. The *great* Victoria Tunnel, in continuing its present course through Sherman Mountain, will cut this as the first of one of the finest groups of fissure lodes known. 11½ tons of ore forwarded to this country, yielded 759 ozs. S. gross, and 11,730 lbs. lead. Gov. P. T. secured to west half, granting 1,000 ft. Two shafts, deepest 75 ft.—*Cab. Spe.*, 466.

LAURA DALE.—*Shaft*, 60 ft.—*Drift*, 15 ft.—*Cre.*, 3½ ft.—*P. V.*, 2 to 8 ins.—*Assay*, 178, 296, 310, 605, and *yield* 156 and 407 ozs. S. pr. ton—*Char.*, galena, zinc, gray C., carb. C., and brittle S.

Is paying well, employing 22 men. 12 tons of ore (1st class) returned 4,890 ozs. S. gross, and 30 tons (2nd class) 4,700 ozs.—*Cab. Spe.*, 679.

MAZEPPA.—*Shaft*, 25 ft.—*Cre.*, 3½ ft.—*P. V.*, 5 to 14 ins.—*Assay*, 242, 253, and (se. spe.) 653 ozs. S. pr. ton.

Was discovered in running the Pelican Tunnel through which it is now worked. All ore is sold, 1st class to Prof. Hill, at Black

Hawk, for smelting; and 2nd class to Palmer and Nichols, at Georgetown, for amalgamation—*Cab. Spe.*, 799.

MOORE (CHARLES H.)—*Shafts*, 25 ft.—*Cre.*, 3 ft.—*P.V.*, 2 to 3 ins.—*Assay*, 40 and 135 ozs. S. pr. ton, and 70 % lead—*Char.*, galena, iron, and C. py. and carb. C.—*Cab. Spe.*, 384.

MATILDA FLETCHER.—*Shaft*, 80 ft.—*Levels*, 207 ft.—*Cre.*, 3 to 4½ ft.—*P.V.*, 7 to 16 ins.—*Assay*, 290, 700, and 1,880 ozs. S., and *yield* (1 ton), 1,384 ozs. S. pr. ton.—*Char.*, galena, zinc, sulpts. S. and gray C.

Owners piling all ores, excepting sufficient to pay expenses with, which are sold to the local amalgamating works.—*Cab. Spe.*, 682.

MAGNET.—*Shafting*, 150 ft.—*S. Dfts. and Levels*, 298 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 3 to 8 ins.—*Assay*, 104 to 322, (se. spes.) 625, 772, and (by the author, *simple gange rock*) 8, (*Cre. dirt*) 18½, and (*galena*) 219 ozs. S. pr. ton.—*Yield*, 44 to 185, 245, 303, and 669 ozs. S. pr. ton.—*Char.*, galena, zinc, carb. C., and iron py., with gange composed of quartz, feldspar, and chlorite, carrying the sulphate, and the black and blue sulpts. S., the latter occasionally interspersed in the form of strings through the rock.

Is a main fissure lode. Has returned thus far to owners a profit over every expense of the work of opening. 13 tons sold, realized (roasted and amalgamated) 2,171 ozs. S. gross; 13½ tons 3,294 ozs., and 4½ tons 675 ozs.; while 33 tons gave 47 to 669 ozs. S. pr. ton, and one lot sent forward and sold in England, 306 ozs. Average yield to date of all ore, 154 ozs. S. pr. ton. At this present, is returning as the result of four men's work, \$1,000 per week. Should, with its undoubted promise, be most actively and extensively worked. Has been examined and reported upon by the author. Is at this present about to be provisionally owned by an English syndicate, who are proposing to send an agent to the mine, instructed to make thorough tests of value before finally purchasing.—*Cab. Spe.*, 435.

NEW BOSTON.—*Shaft*, 180 ft.—*Levels*, 96 ft.—*Cre.*, 5 ft.—*P.V.*, 6 to 36 ins.—*Assay*, 26, 30, 38, 50, and (by B.C.M.B.) 16 and 41 ozs. S. pr. ton, and 38 to 50% lead.—*Yield*, 31 and 34 ozs. S. pr. ton.—*Char.*, galena, zinc, and iron py.

Is a massive lode, carrying a mineral vein of almost unequalled strength. A tunnel run 255 ft. intersects the main shaft at the bottom. South wall shows slickensides, which for 75 ft. midway of its depth, is like a mirror, black as ebony, and sufficiently polished to cast a strong reflection of light. Has been examined and reported upon by the author.—*Cab. Spe.*, 443.

NI-WOT—*Shafting*, 65 ft.—*Levels*, 85 ft.—*Cre.*, 2½ to 4 ft.—*P.V.*, 2 to 10 ins.—*Assay*, 98 to 388, and (by B.C.M.B.) 157 and

209 ozs. S. pr. ton—*Char.*, galena, zinc, iron py., the sulpts. of S., and gray qtz.

Would be a profitable mine, if actively (instead of occasionally,) worked. Ore piled. Has been examined and reported upon by the author—*Cab. Spe.*, 457.

ANZA.—*Shafting*, 85 ft.—*Cut*, 25 ft.—*Cre.*, $3\frac{1}{2}$ ft.—*P.V.*, 4 to 9 ins.—*Assay*, 113 to 151 ozs. (se. spes.) 504, 3,654 ozs., and (by B.C.M.B.) 40, 55, and 62 ozs. S., and 1 dwt. G. pr. ton, with 24, 31, and $45\frac{1}{2}\%$ lead—*Yield*, 64 ozs. pr. ton—*Char.*, galena, zinc, and gray qtz., the latter carrying the sulpts. of S.

Is a promising lode, carrying a fair crevice of mineral and gange. 8,000 lbs. ore, returned (amalgamated) 256 ozs. S. gross. Has been examined and reported upon by the author. West half (in connection with the east half of the Crescent lode, distant 300 ft.), is owned by an English Company.—*Cab. Spes.*, 388.

K.—*Shafting*, 206 ft.—*Levels*, 285 ft.—*Cre.*, 1 to $2\frac{1}{2}$ ft.—*P.V.*, 1 to 3 ins.—*Assay*, 69, 156, 550, and 1,309 ozs., and *yield*, 476 and 903 ozs. S. pr. ton, and 41 % lead—*Char.*, galena, zinc, and sulpted. S. qtz.

Carries a narrow but very rich vein of ore. Is reached by a cross cut, through which one of the two companies owning, is working. One lot, 13,180 lbs. of ore (roasted and amalgamated) returned 3,119 ozs. S. gross. Employs 20 men. Has been examined and reported upon by the author.—*Cab. Spes.*, 704.

ELICAN.—*Shafting*, 198 ft.—*S. Dfts. and Levels*, 390 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 2 to 11 ins.—*Assay*, 130, 265, 540, 602, 807, (author's office, C.T.) 875, and (se. spes.) 2,015, 2,800, 16,336, and 23,937 ozs. S. pr. ton.—*Yield*, 231, 288, and 550 ozs. S. pr. ton, and 40% lead.—*Char.*, galena, zinc, gray C., native and ruby S., and S. glance.

Is a fine main lode, showing great strength of vein, and, actively worked, is returning largely to owners. Weekly product of ore 60 tons. Net profit first year, \$138,000, the gross value of ore mined being \$190,000, at a cost, of producing, of \$30,000, and for transportation to market (paid and allowed) \$22,000. Has been reached by a tunnel, run 325 ft., cutting the main vein 150 ft. below the surface; while a second, already commenced, is expected in a length of 960 ft. to open up the mine 500 ft. below any present working. Production for last May (80 tons) realized in bullion 23,100 ozs. S., while in June next following, 33 tons of smelting ore sold, returned for S. and lead \$15,500, and 147 tons, 2nd class, \$29,400. Total yield in 15 months (from date of first work, spring of 1871 to 25th of last month), \$340,000. A beautiful mass of wire S., weighing 10 lbs., was discovered in one of the workings of this mine, also some S.

glance, one specimen from which weighed 2 lbs. Is in every sense an "heir-loom" worth owning, and worth working. 1,000 tons of ore piled.—*Cab. Spe.*, 685.

QUAKER.—*Shafting*, 90 ft.—*Levels*, 29 ft.—*Cre.*, 3 to 4½ ft.—*P.V.*, 2 to 9 ins.—*Assay*, 84, 106, (se. spe.) 3,850, and (by B.C.M.B.) 119, 164, and 231 ozs. S. pr. ton, *yielding* 135 and 155 ozs. *Char.*, galena, iron and C. py., black sulpts. S., zinc, and gray

Promises a large remuneration to owners if properly and actively worked. Has been examined and reported upon by the author. Ore piled. *Cab. Spe.*, 687.

ROBERT OLD.—*Shaft*, 20 ft.—*Side Hill Cutting*, 22 ft.—*Cre.*, 4 to 18 ft.—*Assay*, (by the author,) 18, 35, and 50 ozs. S. pr. ton—*Char.*, ferruginous gray qtz. and feldspar, the latter highly silicated and showing oxydation of the metallic oxydes.

Is a fine appearing lode, promising on further work to prove valuable and return well for developing.—*Cab. Spe.*, 688.

RIO-GRANDE.—*Shaft*, 90 ft.—*Cre.*, 4 ft.—*P.V.*, 2 to 10 ins.—*Assay*, (author's office C. T.) 19, 29, and 32 ozs. S. pr. ton—*Char.*, gray qtz. and feldspar, carrying in scattered particles, galena, iron, and decomposed zinc.

Shows great strength of crevice, giving fine promise of opening out to good ore, and with further development, largely remunerate owners.—*Cab. Spe.*, 689.

SCHUYLKILL.—*Shafting*, 130 ft.—*Levels*, 135 ft.—*Cre.*, 5 to 6 ft. *Assay* (pure mineral), 200 to 500 ozs. S. pr. ton—*Char.*, galena and zinc, carried scattered in a gange of decomposed tale, chlorite, feldspar, and qtz.

This lode was discovered in running the Monticello Tunnel, through which all present development has been made. Crevice material, dry concentrated 8 to 1, has returned nearly 500 ozs. S. pr. ton. Two shafts, one raised over the tunnel to surface 100 ft., and one sunk from floor of east drift 30 ft.—*Cab. Spe.*, 681.

STERLING.—*Shaft*, 46 ft.—*Cre.*, 3 ft.—*Assay*, 83, 116, 217, and (se. spe.) 1,205 ozs., and yield 567 ozs. S. pr. ton—*Char.*, carb. lead and decomposed sulpts. S., carried in a gange of soft feldspar and qtz.

Sample lot of ore sent to Philadelphia gave a return of \$1,633 pr. ton, while 5,094 lbs. realized 2,850 ozs. S. gross, netting owners over every expense \$2,219—*Cab. Spe.*, 381.

SQUARE AND COMPASS.—*Shafting*, 180 ft.—*S. Dfts. and Levels*, 265 ft.—*Cre.*, 3 to 5 ft.—*P.V.*, 1 to 3 ins.—*Assay*, 153, 403, 550, (se. spes.) 917, and 1,211 ozs. S. pr. ton, *yielding* 209, 385, and 770 ozs. S.—*Char.*, galena, zinc, and sulpts. S., carried by a ferruginous gray qtz., and feldspar.

This lode is crossed by the *great Marshall Tunnel*, but its shafts not being sunk sufficiently deep, no connection yet exists between the two. Ore vein thin but *very* rich. Crevice where crossed in the tunnel shows a width of 47 ft. Has been examined by the author.*—*Cab. Spe.*, 405.

SNOW DRIFT.—*Shafting*, 592 ft.—*Levels*, 562—*Winzes*, 80 ft.—*Cre.*, 2 to 4½ ft.—*P.V.*, 3 to 14 ins.—*Assay*, 12½, to 616, 1,490, 2,156, and three lots *se. ore* (1st, 500 lbs.), 2,535 ozs. (2nd, 100 lbs.), 3,159 ozs., and (3rd, 300 lbs.), 3,356 ozs., S. pr. ton, and 43, 47, and 55% lead; while a test of some ore from the lowest working gave more than 12% S. *Yield*, 31, 125, 286, 422, 577, 888, 924 and 1,001 ozs. S. pr. ton.—*Char.*, sulphide zinc and C., black decomposed sulpts. S. and galena, carried in a gange of ferruginous feldspar and qtz.

The peculiar feature of this mine (as with some others that are near neighbours), is its extraordinary rich product. Sample assays of three lots of crushed ore, gave 893, 1,178, and 1,404 ozs. S. pr. ton. 5,000 lbs. of ore (treated by the Hagan Superheated Steam Process), returned 696 ozs. S. gross; 6 tons, 1,269 ozs.; 20 tons, 3,800 ozs.; a number of lots, aggregating $50 \frac{1 \frac{1}{2} 3 \frac{1}{2}}{2000}$ tons, 14,064 ozs., and 100 tons, 26,913 ozs.; while six assays of a car of 10 tons of ore (sent to the Newark Smelting Works), averaged \$1,300 pr. ton; other subsequent lots, \$1,200; several tons from the Goodhope shaft (so called), \$1,000 to \$1,400; 10 tons. sold in New York, \$7,930 gross, and forwarded out to England, 30 tons, £60 per ton. Has considerable ore piled. Vein on the surface shows continuous for over 800 ft., six shafts having been sunk at intervals in this distance, with the deepest 230 ft. Is owned by an English company, who receive and sell their own 1st class ore. Absorbed the Goodhope lode. Present workings, actively employ 25 miners. *Gov. P.T.* obtained, granting 1,400 ft. Gained the 1st prize (a gold medal), at the Annual Territorial Fair (held at Denver in 1870), for largest and best collection of Argentiferous ores. Has been examined and reported upon by the author.—*Cab. Spe.*, 400.

SCOTT.—*Shaft*, 25 ft.—*S. Drift*, 40 ft.—*Cre.*, 2½ to 4 ft.—*P.V.*, 2 to 4 ins.—*Assay*, (author's office, C. T., *gange*), 9 ozs.; (*mixed mineral and gange*) 77 ozs., and (*Carb. C.*) 188 ozs. S. pr. ton.—*Char.*, galena, zinc, and carb. C.

* In December last, in a matter of dispute that had arisen between the owners of the Seneca and Cayuga lodes, and the owners of the Square and Compass, (an adjoining lode,) where the former had issued an injunction, restraining the latter from working on what was claimed by them to be their property, Judge J. B. Belford, in whose Court the case for raising the injunction was being tried, instructed the author to make a careful professional examination of the mining interests in dispute, and report his opinion if there had been any trespass. The author, after four very careful examinations—made in company with the United States Deputy Surveyor (A. Johnson) and others—reported that there had been no trespass on the part of the owners of the Square and Compass lode; on the contrary, he gave it as his *sworn* opinion, that the trespassers, if any, were the owners of the so-called Seneca and Cayuga lodes.

Shows well, giving strong evidence of value, and assuring a fine mine on being further developed. Is reached by a cross cut 16 ft., and by a tunnel 110 ft.—the latter cutting the lode 90 ft. below the surface. Has been examined and reported upon by the author.—*Cab. Spe.*, 471.

SILVER FLINT.—*Shaft*, 15 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 1 to 3 ins.—*Assay*, 80 ozs. S. pr. ton—*Char.*, decomposed feldspar and qtz., carrying galena, zinc, and iron.

Looks well, and promises to repay further development. Has been examined by the author.—*Cab. Spe.*, 382.

SILVER PLUME.—*Shaft*, 144 ft.—*S. Drifts*, 820 ft.—*Cre.*, 2 to 3½ ft.—*P.V.*, 1 to 5 ins.—*Assay*, 143 to 425 (se. spes.) 1,290 to 3,566 and (by B.C.M.B.) 87, to 209, and 1,102 ozs. S. pr. ton, and 18 to 33% lead—*Yield*, 258, 304, 330, 361, 382, and 391 ozs. S. pr. ton—*Char.*, oxyd. lead and zinc, gray C., sulpts. S., silicated qtz., and feldspar.

Is being actively worked, employing an average of 15 miners. 9¹¹⁸²/₂₀₀₀ tons of ore forwarded to England, returned £635 12s. 1d. gross; 5²⁵⁰/₂₀₀₀ tons £518 0s. 7d., and five subsequent lots, weighing total 25⁴³⁶/₂₀₀₀ tons £2,182, 9s. 11d., while a small parcel gave the astonishing yield of \$1,400 pr. ton. Average value of all ordinary 1st class ore, \$460 pr. ton; 2nd class, \$140; and 3rd class, \$67. Productive power, ½ to ¾ tons of undressed ore per fathom, worth \$200 to \$250 pr. ton. Treated by the Hagan process, 3 tons of 1st class and 6 tons of 2nd class realized, respectively, \$275 and \$100 pr. ton. Has been examined and reported upon by the author. Is owned by an English company under Gov. P.T. granting 1,400, feet, and including the "Silver Star" extension, 2,800 feet.—*Cab. Spe.*, 680.

VICTOR.—*Drifts*, 78 ft.—*Cre.* 5 to 8 ft.—*P.V.*, 1 to 9 ins.—*Assay*, 70, 169, and (se. spes.) 402, and 721 ozs. S. pr. ton—*Char.*, galena, zinc, and sulpts. S., impregnating a hard gray quartzite.

Is a massive lode. Has been opened on the surface for several hundred feet, disclosing a fine crevice between walls, and a character of material and strength of vein that indicate a true fissure. Outcrop large and traceable for a long distance. Has been examined and reported upon by the author.—*Cab. Spe.* 449.

IDAHO DISTRICT.

FRANKLIN LODGE.—*Shafting*, 310 ft.—*Levels*, 495 ft.—*Cre.*, 3 to 9 ft.—*P.V.*, 10 to 40 ins.—*Assay* (pure galena), 9 ozs. (metallic lead) 33 to 60 ozs., (cre. material) 61 ozs., (mineral and gange) 69 ozs., (se. spes. silver lead) 250 and 301 ozs., and (by B.C.M.B.) 82 ozs. S. pr. ton, and 34 % lead.—*Yield*, 38, 73 and 77 ozs. S. pr. ton.—*Char.*, galena, sulpts. iron and zinc, and carb. C.

Is undeniably a main lode, possessing great strength and character. Has an immediate value for working, it being fully developed to pay. Nearly 200 tons (heavy galena ore) sold for smelting, realized \$50 pr. ton. $7\frac{1}{2}$ tons (amalgamated in Varney Pans) returned 577 ozs. S. gross. 800 to 1,000 tons of ore piled. Four shafts, deepest 135 ft.—*Cab. Spe.*, 266.

SEATON.—*Shafting*, 696 ft.—*Levels*, 580 ft.—*Cre.*, 3 to 9 ft.—*P.V.*, 8 to 30 ins.—*Assay*, 9 ozs. G., and 42 ozs. S., and \$40, \$150, \$258, \$288, and \$450 G. and S. pr. ton, and 10, 14, and 19 % lead.—*Yield*, (in the early time) \$14, \$18, \$30, and \$35 G. pr. ton, losing all the silver, copper, and lead; and later, 90, 98, and 127 ozs. S. pr. ton, losing all the G. (thus reversing the old order), and as before, the copper and lead.—*Char.*, sulphide lead and zinc, black oxyd. C., and iron py., carrying in a *highly* appreciable amount, both G. and S.

Is undeniably second to no lode in this District for workable value. 40 cords of quartz and mineral (stamped) returned 450 oz. G. gross. Ore has been treated by the Hagan process, and also smelted, by the latter realizing \$166 pr. ton. Yield at this present writing 45 tons of smelting ore pr. week, worth for G., S., and C., \$200 pr. ton. Large quantities of ore piled. Third class ore, assaying 30 ozs. S. pr. ton, is concentrated by the "Krom" dry process to 96 ozs., and sold. Was once worked entirely for gold; but will soon become as valuable to owners for silver, copper, and lead, as for its former product.* Six shafts, deepest 268 ft.—*Cab. Spe.*, 234.

NOTE.—The Seaton was the first Colorado mine which while being worked for gold began to change in the character of its ore, and from yielding a product worth \$18 to \$20 pr. oz., returned a nearly white metal, which when sold realized less than half this value. At this early time (1862) there was found no one in the territory whose metallurgical and assay knowledge was sufficient to explain the phenomenon; consequently, strange as it might now seem, (*the presence of silver not being suspected*), the mystery remained long unsolved, and the product generally known as "Seaton Gold" worth variously from \$7 to \$9 pr. oz.

SCHAFFTER.—*Shafting*, 52 ft.—*Cuttings*, 40 ft.—*Cre.*, 3 to 5 ft.—*Assay*, \$18, \$50, and \$52 G. and S., and (by B. C. M. B.), $1\frac{7}{10}$ G., and 8 ozs. S. pr. ton—*Char.*, an iron py. and qtz., carrying in finely scattered particles, galena and zinc.

Is opened for nearly 1,000 ft. on the surface. Ore frequently shows native gold. Should be actively worked.—*Cab. Spe.*, 691.

VETO.—*Shafting*, 180 ft.—*Levels*, 190 ft.—*Cre.*, 4 to 7 ft.—*P.V.*, 3 to 15 ins.—*Assay*, 116, 160, 385, 614, and *Yield*, 261 ozs. S. pr. ton.—*Char.*, galena, zinc, gray C., and sulpts, S.

Is a strong lode, and lavish in the value of its product. 20 tons of ore sold for smelting, realized \$6,000 gross. Ore piled in large quantities. Was awarded the 2nd prize at the Annual Territorial Fair (held at Denver in 1869), for second best variety and richness of ore from Colorado.—*Cab. Spe.*, 275.

LINCOLN DISTRICT.

BLAZING STAR LODE.—*S. Drift*, 170 ft.—*Cre.*, 2½ to 4 ft.—*P.V.*, 2 to 18 ins.—*Assay*, (average of 18 ins. of cre. material) 1 oz. G., and 150 ozs. S.; 1 oz. G., and 287 ozs. S.; 1½ ozs. G., and 212 ozs. S.; 2½ ozs. G., and 202 ozs. S.; (average of 8 assays) 2½ ozs. G., and 274 ozs. S.; and 16 ozs. G., and 51 ozs. S. pr. ton with 10½ to 13½ % C.—*Char.*, galena, iron and C. py., arsenic and gray qtz.

Is a fine gold, as well as silver bearing lode. Produces beautiful specimens of what by the miners is called Peacock Ore. Promises to return well to owners. Gained the *Silver Medal* * at the Annual Territorial Fair (held in Denver in 1870). Gov. P. T. obtained, granting 1,400 ft.—*Cab. Spes.*, 703.

NOTE.—This prize medal has been kindly loaned by the owner, J. M. Holland, for a few months to the B.C.M.B., Bartholomew House, London, E.C., where it can by anyone interested be seen.

PHILLIPS.—*Shafting*, 395 ft.—*Levels*, 168 ft.—*Cre.*, 2½ to 4 ft.—*P.V.*, 10 to 28 ins.—*Assay*, \$70, \$108, \$200, and (se. spe.) \$58. G. and S. pr. ton—*Yield*, 1 oz. to 1½ ozs. G. pr. ton—*Char.*, iron qtz. and galena.

Promises to return well, if properly worked and the produce rightly treated. 100 cords principally of surface ore, (worked in the Montrose Mill,) returned 1,090 ozs. G. Is opened by 8 shafts—deepest 130 ft.—*Cab. Spe.*, 694.

ROYAL.—*Shaft*, 45 ft.—*Drift*, 22 ft.—*Cre.*, 2½ ft.—*P.V.*, 2 to 6 ins.—*Assay*, 1 oz. G. and 31 ozs. S., and 3¼ G. and 157 ozs. S. pr. ton, and 18 to 24 % lead—*Yield*, \$100 to \$225 pr. ton—*Char.*, galena, au. iron and free G. qtz.

Promises well, having a fair reputation. Several lots of ore (weighing total 13,000 lbs., and sold for smelting,) realized \$1,025 gross.—*Cab. Spe.*, 709.

QUEEN'S DISTRICT.

BALTIMORE LODE.—*Shaft*, 11 ft.—*Level*, 89 ft.—*Cre.*, 6 to 10 ft.—*P.V.*, 2 to 5 ins.—*Assay*, 102, 140, to 382, and *yield*, 77 and 120 ozs. S. pr. ton—*Char.*, galena, zinc, and S. sulptd. quartz.

Was discovered in the American tunnel, 147 ft. from mouth and 100 ft. below the surface. Average return of all ore treated \$100 pr. ton.—*Cab. Spe.*, 459.

BENTON.—*Shafts*, 55 ft.—*Drifts*, 25 ft.—*Cre.*, 4 to 18 ft.—*P.V.*, 4 to 10 ins., with mineral solid—*Assay*, 23, 27, 63, 70, and (se. spe.) 590 ozs. S. pr. ton—*Char.*, galena, zinc, and iron py.

Is opened in numerous places the whole length of the lode, showing a strong main vein. Gov. P. T. applied for. Two shafts, deepest 45 ft.—*Cab. Spe.*, 468.

BROWN.—*Shafting*, 240 ft.—*Levels*, 975 ft.—*Winzes*, 180 ft.—*Cre.*, 3 to 6 ft.—*P.V.*, 2 to 16 ins.—*Assay*, 40, 96, 177, 365 to 681 ozs., and (se. spes.) 1,235 to 2,090 ozs. S. pr. ton, and 18, 22, and 34% lead.—*Yield*, (2nd class) 78 ozs., and (1st class) 178, 212, 232, and 304 ozs. S. pr. ton.—*Char.*, galena, zinc, iron and C. py.. gray C. and sulpts. S. carried in a gänge of feldspar and qtz.

Has been well proved, and shown to be a most valuable mine. 30 tons of Ore (smelted,) returned 6,960 ozs. S. gross; 23 tons 7,000 ozs., and 100 tons (amalgamated) 7,755 ozs., while 246 tons realized \$232 per ton, and 655 tons 138,547 ozs. (or 11,545 Troy lbs.) S. gross. Grand total returned to February 25th, 1871 (mined since this date, has changed hands), 204,163 ozs. S., equal in value to \$265,411. Has been reached by a tunnel run 180 ft., cutting the lode 200 ft. below the surface. Two shafts, deepest 190 ft. Gained two 1st prizes at the Annual Fair of the territory (held at Denver, in 1869*), the first for "largest mass of bullion," and the second for silver Ore, "showing the best and richest variety of mineral in the vein."—*Cab. Spes.*, 398 are very fine, No. 398A showing both brittle and ruby silver.

COIN (U.S.)—*Shaft*, 49 ft.—*Surface Level*, 305 ft.—*Cre.*, 3 to 5 ft.—*P.V.*, 1 to 7 ins.—*Assay*, 80, 116, 211 to 662 ozs. S., and *yield*, 105, 133, 158, 299, and 304 ozs. S. pr. ton, and 26 to 35% lead.—*Char.*, galena, zinc, gray C., and brittle and ruby S.

Is a *very strong* northwest spur from the Brown lode. 7,500 lbs. of ore (amalgamated) returned 1,124 ozs. S. gross, and 50 tons (smelted) 7,923 ozs.—*Cab. Spe.*, 396.

HERCULES.—*Shafting*, 99 ft.—*Levels*, 530 ft.—*Winzes*, 70 ft.—*Cre.*, 2 to 4 ft.—*P.V.*, 2 to 16 ins.—*Assay*, 405, 442 ozs. (author's office, Georgetown, C.T., *pure gänge*) 9 and 20 ozs., (*gänge and mineral*) 55 to 87 ozs., (*decomposed sulpts. and gänge*) 409 ozs., (*galena and zinc*) 401 ozs., (*pure galena*) 612 to 693 ozs., (*crevice dirt*) 300 to 496, and 645 ozs., and (*decomposed sulpts.*) 962, 967, 1026, 1175, and 1603 ozs. S. pr. ton, and 20 to 34% lead.—*Yield*, 225, 449, 513, and 834 ozs. S. pr. ton.—*Char.*, galena, zinc, gray C., and sulpts. S., carried in a gänge of ferruginous feldspar and quartz.

Is a valuable and actively worked mine. 2,168 lbs. of ore sold to J. O. Stewart, Georgetown, realised \$1,007, and 12,593 lbs., \$3,526; while 14,900 lbs. of 1st class, sold in Chicago, returned net (over both cost for reduction and freight) \$4,003 net, and 4,800 lbs. of 2nd class, \$670. Has been reached by a cross-cut 39 ft., through which the 2nd level is worked. Was examined last year by the

* The author was appointed at this Exhibition to act as one of the Judges, or Committee of Awards in the department of "Mineralogy, Gold, Geology, &c." These Annual Exhibitions of the Product and Industry of Colorado, are held under the auspices of The Colorado Agricultural and Industrial Society. This Fair was the fourth since their inauguration.

author, at the request of Hon. L. G. Calkins, and a purchase by this gentleman, either for himself or others, recommended. It is owned at this present by The International Mining and Exchange Company, Chicago. Gov. P. T. applied for. Extent 3,000 ft.—Ore frequently shows native silver. Two shafts, deepest 90 ft.—*Cab. Spes.*, 702 are very fine, No. 702A showing native silver.

ROE (JOHN J.)—*Shafting*, 185 ft.—*S. Dfts. and Levels*, 495 ft.—*Cre.*, 3 to $4\frac{1}{2}$ ft.—*P.V.*, 3 to 14 ins.—*Assay*, 52, 106, 138, to 522 ozs., and *yield*, 105, 107, $141\frac{1}{2}$, 332, and 500 ozs. S. pr. ton, and 46% lead—*Char.*, galena, zinc, iron and C. py., and sulpts. S.

Is a valuable, and can be made a most productive mine.— $3\frac{1}{2}$ tons of ore (sold for smelting) realized \$1,655 gross; 10 tons \$6,500; 50 tons \$15,080, and 8 and 11 tons (amalgamated) 840 and 1,177 ozs. S. total; while several other lots (also sold for smelting) returned \$184 per ton. All 1st class ore carries 30 to 40% lead. Has absorbed the Lily and Rip-Van-Winkle lodes. Gov. P.T. obtained to West 800 ft. Two shafts, deepest 120 ft.—*Cab. Spe.*, 409.

TERRIBLE.—*Shafting*, 391 ft.—*Levels*, 2,138 ft.—*Winzes*, 418 ft.—*Cre.*, 3 to 19 ft.—*P.V.*, 1 to 10 ins.—*Assays*, (author's office, Georgetown, C. T., numerous tests of gangue rock,) 7 to 10 ozs., (fine grained galena,) 61 to 70 ozs., (C. and iron py.) 68 to 73 ozs., (iron and C. py. and galena,) 132 to 154 ozs., (ordinary cube galena,) 160 to 290 ozs., (se. spes. carrying brittle S.) 1,648, 2,750, and 3,290 ozs., (3rd class Ore, 10 samplings,) 30 to 52 ozs., (2nd class, 11 samplings,) 90 to 174 ozs., (1st class, 7 samplings of clean mineral,) 358 to 750 ozs., and (dry concentrated 3rd class, average of 7 samplings,) $88\frac{1}{2}$ ozs. S. pr. ton, and 7 to 38% lead.—*Yield*, $171\frac{1}{4}$, 405, $441\frac{1}{2}$, $83\frac{1}{2}$, $102\frac{1}{2}$, and 370 ozs. S. pr. ton, and 28½% average of lead.—*Char.*, galena, zinc, iron and C. py., grey C., stephanite, paragyrite, and S. glance, carried in a gangue composed principally of white granular feldspar, with qtz. intermixed.

This lode from the first opening, and the first test made of its Ore to the present, has always sustained a high reputation. To March 31st, 1870, a total of 121,600 lbs. of 2nd class Ore (amalgamated), yielded 10,413 ozs. S. gross, and 471,500 lbs. (sold to different smelters) $95,654\frac{1}{2}$ ozs., with 1,200 tons of 2nd and 3rd class on hand, that subsequently returned (averaging 65 ozs. S. per ton), 78,000 ozs. gross. Since April 1st, 1870, the west 800 ft. of this lode, and 300 ft. east* have been owned and operated by

* This 1,100 of the 1,600 ft., comprising the Terrible lode, was sold by the author through The British and Colorado Mining Bureau, London, for £100,000 sterling, the sale being made to the present Colorado Terrible Lode Mining Co. (Limited).

an English company from whom to end of November 1871,* the returns were—966,220 lbs., 3rd class ore, (of which $95\frac{1554}{2000}$ tons, averaging $83\frac{1}{2}$ ozs. S. per ton, was concentrated from $296\frac{852}{2000}$ tons of the poorest of this lowest grade), yielded 16,311 ozs. S. gross; 1,001,872 lbs., 2nd class, 51,424 ozs.; and 369,922 lbs., 1st class, 68,449 $\frac{1}{2}$ ozs., this latter returning 104,526 lbs. metallic lead; while at this date there was (dry weight) 687,774 lbs. 2nd class, and 755,502 lbs. 3rd class ore on hand, estimated to contain respectively 35,250 and 16,826 ozs. S. gross. TOTAL value of product for twenty months (2nd and 3rd class ore), \$96,279† and realized from sale of shipments of 1st class to England, £15,067 1s. 1d. Expenses *in full* of the Colorado management, (not including tunnel \$11,773 $\frac{40}{100}$; construction \$11,402 $\frac{80}{100}$; wire way \$2,719 $\frac{20}{100}$; and interest \$1,024 $\frac{60}{100}$; all accounts which capital should meet,) \$96,852 $\frac{74}{100}$, thus showing as a NET surplus available for dividend, almost the entire amount realized from ore received by the London office, less expenses of the home management, which for this period, viz., twenty months, were £1,515 18s. 9d. Additional returns of product of the English Company to end of June last were, 58 $\frac{1}{2}$ tons 1st class, 238 tons 2nd class, and 547 tons 3rd class ore, with respectively an estimate of 4 $\frac{1}{2}$ tons, 45 tons, and 50 tons, broken in the mine, but not at this time delivered at the surface, the whole carrying not less than 67,000 ozs. S. gross. The Clark Mining Company own, and are working the remaining 500 of the 1,600 ft. of this lode; but having made no returns I am unable to give any facts; but the yield of the Ore mined, it is estimated, would equal about 55,000 ozs. S. gross. All assays of Ore show 1 to 3 dwts. G. per ton. Has been reached by tunnel, 280 ft. below the surface, through which the English Company entirely operate. A new main shaft is being sunk below the lowest or fourth level, commenced 225 ft. west of the old shaft, and immediately east of the crossdrift or tunnel entering the mine. Lode tests of Ore from various depths in the last working made by the present agent, show 379, 432, 1,020 and 1,900 ozs. S. per ton. Total amount of value carried in the product of this lode, from the first commencement of work to end of June last, 494,267 $\frac{1}{2}$ ozs. S., and 283,431 lbs. lead.—*Cab. Spes.*, 401 are very fine and of great variety, Nos. 401A, B, &c., showing brittle, ruby and native silver.

* The author was appointed by this company to go out to Colorado and assume the entire charge of their mine, which position he accepted, resigning on December 1st last his management, with results as detailed above.

† This is *net*, after allowing 20 per cent. discounted from assay value, and \$30 per ton deducted for cost of treatment. Or to illustrate: an ore carrying 100 ozs. silver per ton, is paid for as 80 ozs. less the charge for reduction. Of course this rule as adopted in making returns, whether for ore purchased or worked on account, precludes the miner from reaping the full benefit that he should from his product. If anything over 80 per cent., (as for instance, 85 or 90 per cent., which latter is the more general result with the chlorination works of Georgetown and vicinity,) is obtained, he gets nothing additional paid him, and his loss is the mill owner's larger gain.

SPANISH BAR DISTRICT.

EDGAR LODGE.—*Shafting*, 110 ft.—*Levels*, 340 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 6 to 16 ins.—*Assay*, 21, 84 to 313 ozs. and (se. spe.) 2,562 ozs. S. pr. ton, and 9 to 14% C., and 22% lead—*Yield*, 33, 51, and 58 ozs. S. pr. ton—*Char.*, galena, zinc, iron and C. py., black oxyd. of C., and occasionally C. glance.

Is owned and worked by several Companies. 9 tons of ore (amalgamated) realized \$720 net, after deducting cost for treatment; and 18 tons (manipulated by the Hagan process) \$1,250. Nearly all the ore mined is piled, and will be (*as at many other mines*), till it can be made available by the more general erection of ample and superior reducing works.—*Cab. Spe.*, 280.

FAIRMOUNT.—*Shaft*, 90 ft.—*Cre.*, 3 to 4½ ft.—*P.V.*, 2 to 8 ins.—*Assay*, (*gange rock for G. & S.*) \$36, \$38, \$49, \$103, and \$116; (*honey comb quartz, for G. & S.*) \$647; (*black oxyd C., for G., S. & C.*) \$183 and \$259; (*galena, and iron and C. py., for G., S. & C.*) \$362; (*pure black oxyd C. and gange*) 68 ozs. G., and 125 ozs. S., or including the C. value of same, \$1,554; and (made by B.C.M.B., *several tests*) 4 to 9½ ozs. G., 39 to 151 ozs. S. pr. ton, and 14 to 41% C.—*Char.*, iron, C. and arsenical py., black oxyd C. and C. glance, and galena, carried by a very fine gange of feldspar and qtz., the whole highly auriferous.

Is a strong main lode, and were it noted only for one of either of its chief minerals—gold, silver, or copper—would, in any other country, be considered a prize; why then is it not worked, and the product value of Colorado mining increased.—*Cab. Spe.*, 285.

HUKILL.—*Shafting*, 110 ft.—*Levels*, 40 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 2 to 6 ins.—*Assay*, \$104, \$131, to \$560, and \$644 G. and S. pr. ton.—*Yield* (ore imperfectly treated) \$10 to \$17 G. pr. ton, losing all the S. and C., the latter often showing a large per cent.—*Char.*, arsenical iron py., black oxyd C., galena and au. qtz.

This is a fine lode, producing a character of ore that promises well for the future. Is conveniently situated, and should be actively worked.—*Cab. Spe.*, 698.

As proof of the fact of the general high value of the ores of this county, chiefly from Griffith District, I quote the following evidence of Messrs. Palmer and Nichols, who with Mr. J. O. Stewart, of the Stewart Silver Reducing Works,* enjoy the *full* confidence of the miners of Georgetown, which I can say they justly deserve, having had during my 20 months of management of the Terrible Company's Mine, large quantities of ore treated by both.

* These Works, and the works of Palmer and Nichols, dry crush and amalgamate all ores.

" Georgetown, Feb. 14th, 1872.

" Mr. R. O. OLD,

" Dear Sir,—In reply to your inquiry of how much ore we have run, and what its average yield, would say—in 180 working days we treated $528\frac{1}{2}$ tons of ore, which averaged milled $148\frac{1}{2}$ ozs. silver per ton of 2,000 lbs.

" Respectfully yours,

" PALMER & NICHOLS."

The author would add, that the gross value of the silver bullion returned by Messrs. Palmer and Nichols, as the result of their first years operation, ending with July 31st last, was \$141,480.

The following evidence is of a prior date :—

" Georgetown, Colorado,

" Nov. 24th, 1870.

" Mr. R. O. OLD,

" Dear Sir,—The number of tons of 2nd class ore, run at the German Reduction Works, from Leavenworth Mountain, was $444\frac{1}{2}$ tons, averaging $70\frac{1}{2}$ ozs. Silver per ton.

" Respectfully yours,

" L. HUEFEDEN & Co."

As further evidence of the high average value of the ore of the upper portion of Clear Creek, Mr. J. O. Stewart reported having treated in the 51 days preceding the fire that lately destroyed his works, $306\frac{1}{2}$ tons of ore (principally 2nd class), which averaged $\$163\frac{2}{100}$, or 126 ozs. silver per ton.

The Georgetown *Miner* of July 11th last, says: " W. H. Stoelting, Territorial Assayer, sampled and assayed during the first half of the present year 257 separate lots of ore (total over 500 tons), the average return of which was $298\frac{3}{4}$ ozs. silver per ton. Included in the several samplings, were 53 lots of ore, that showed 40.3 per cent. of lead.

Still later, the same paper reports, that the Arey Crushing and Sampling Works of Georgetown, crushed and sampled during June and July this year, 247 tons of ore, averaging 154 ozs. silver per ton; in one week sacking and sending forward to Chicago (where the chief of the ore from these works is sent for treatment) 42 tons, and in one day 28 tons.

GILPIN COUNTY.

CENTRAL CITY DISTRICT.

ADELINE LODGE.—*Shafting*, 129 ft.—*Levels*, 90 ft.—*Cre.*, 4 to 10 ft.—*P. V.*, 12 to 36 ins.—*Assay*, 1 to $4\frac{1}{2}$ ozs. G., and 13 to 26 ozs. S., and *yield*, $\frac{1}{2}$ to $\frac{3}{4}$ and 3 ozs. G. pr. ton—*Char.*, au. iron py. and qtz.

Crevice large, containing pay material its whole width. Ore stamped, returns \$80 to \$125 per cord; sold for smelting (1st class, or mineral) realizes \$30 to \$62 per ton.—*Cab. Spe.*, 201.

EAST BOSTON.—*Shafting*, 270 ft.—*Levels*, 200 ft.—*Cre.*, 3 to 12 ft.—*P.V.*, 20 to 48 ins.—*Assay*, 4 to $12\frac{1}{2}$ ozs. and *yield* $\frac{1}{2}$ to 2 ozs. G. pr. ton.—*Char.*, free gold qtz., carrying intermixed, iron and C. py.
Is a strong main lode, with crevice in places 20 to 50 ft. wide. Mill returns for all ore stamped, show $3\frac{1}{2}$ to 11 ozs. G. per cord. Has always produced well and been profitable to work, yielding large amounts of "pay" cheaply. $3\frac{1}{2}$ cords stamped, realized \$840 gross, and 14 cords \$2,750. Large quantities of ore piled.—*Cab. Spe.*, 200.

PIERCE.—*Shaft*, 70 ft.—*Levels*, 55 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 10 to 24 ins.—*Assay*, $1\frac{4}{10}$ to $3\frac{1}{2}$ ozs. G., and *yield* $\frac{3}{4}$ to $1\frac{1}{10}$ ozs. G. pr. ton.—*Char.*, free gold qtz. and iron py., with occasionally carb. C. and galena mixed.
Shows well and with its promise should be actively worked. 15 tons of ore (stamped) returned 16 ozs. G. gross.—*Cab. Spe.*, 801.

WINNEBAGO.—*Shafting*, 455 ft.—*Levels*, 530 ft.—*Cre.*, $2\frac{1}{2}$ to 4 ft.—*P.V.*, 5 to 20 ins.—*Assay*, \$29 to \$85 G. and S., and $\frac{3}{4}$ to $1\frac{1}{4}$ ozs. G. pr. ton.—*Char.*, au. iron and C. py., galena, and zinc.
Mill returns of Ore show $4\frac{1}{2}$ to 9 ozs. G. per cord, with tailings assaying $1\frac{1}{2}$ to $2\frac{1}{2}$ ozs. G. per ton. Ten per cent. of total product is smelting ore.—*Cab. Spe.* 208.

ENTERPRISE DISTRICT.

COALEY LODE.—*Shafting*, 190 ft.—*Levels and surface drifts*, 205 ft.—*Cre.*, $2\frac{1}{2}$ to 4 ft.—*P.V.*, 2 to 10 ins.—*Assay*, 88, 164, 566 to 981, and (se. spes.,) 2,105 and 4,050 ozs. S. pr. ton, and 24 to 36% lead—*Yield*, 203, 350, to 1,099 ozs. S. pr. ton—*Char.*, galena, sulpt. zinc, iron py., and feldspar gänge, carrying native chlorite and the sulpts. S.

Produced in five weeks, working 6 to 8 men, 25 tons of 350 ounce ore, netting over \$8,000 profit. 14 tons of smelting ore sold, realized \$4,550 gross; and 9 and 10 tons, \$2,600 and \$3,475. Absorbed the Gilpin Tunnel lode. Shows native silver in nearly all ore mined, on one occasion the men working disclosing a "pocket vein" of this metal, measuring nearly an inch in thickness.—*Cab. Spes.*, 117, are very fine from this mine, No. 117a, showing the mineral beautifully spangled, or as if it were inlaid with native silver.

EUREKA DISTRICT.

GUNNELL LODE.—*Shafting*, 1,515 ft.—*Levels*, 3,176 ft.—*Cre.*, 3 to 8 ft.—*P.V.*, 4 to 18 ins.—*Assay*, $\frac{3}{4}$, $1\frac{1}{2}$, $2\frac{1}{2}$, 4 and $8\frac{1}{2}$ ozs. G., and 9 to 24 ozs. S. pr. ton, with 6 to 11% C.—*Yield*, $1\frac{1}{4}$, $1\frac{3}{4}$ to 4 ozs. G., and \$250 G., S., and C. pr. ton.—*Char.*, au. iron and qtz., sulphide C., fine grained galena, and zinc.

Three Companies actively working. One lot 103 tons of Ore, stamped, returned $270\frac{1}{2}$ ozs. G. gross; sold for smelting, has realized \$250 per ton, including the silver and copper carried. Pippin, Bros. & Co., working the Mead shaft at a depth of 170 ft. are taking out Ore that yield 8 ozs. G. per cord. Total value of product in five years, over \$1,000,000. Twenty shafts, deepest 400 ft.—*Cab. Spe.*, 254.

PLEASANT VIEW.—*Shafting*, 140 ft.—*Levels*, 170 ft.—*Cre.*, 3 to 6 ft.—*P.V.*, 10 to 40 ins.—*Assay*, 3, $4\frac{1}{2}$, 7, 10 and 20 ozs. G., and 5 to 14 ozs. S. pr. ton.—*Yield*, 1 to $1\frac{1}{4}$ oz. G. pr. ton.—*Char.*, free G. qtz., sulph. zinc, iron and C. py., and carb. lead, carrying ruby S.

Is producing large quantities of Ore, with work actively progressing. Mill tailings of product, until recently entirely wasted, are being collected and saved, their assay shewing \$98 to \$269 per ton. All ore instead of any longer entailing a loss to owners by being stamped, is piled. Occasionally produces spes. of beautiful crystallizations of G.—*Cab. Spe.*, 243.

QUEEN VICTORY.—*Shafting*, 105 ft.—*Levels*, 26 ft.—*Cre.*, 3 to 5 ft.—*P.V.*, 4 to 11 ins.—*Assay*, \$40, \$56, \$110 to \$150 G. and S. pr. ton.—*Char.*, au. iron and qtz., C. py., and galena.

Is a fine appearing lode and should be worked. Several shafts, deepest 55 ft.—*Cab. Spe.*, 255.

WHITNEY (J. P.).—*Shafting*, 218 ft.—*Levels*, 145 ft.—*Cre.*, 3 ft.—*P.V.*, 8 to 20 ins.—*Assay*, \$32, \$50, and \$78 G. and S., and *yield*, $\frac{3}{4}$ oz. G., and 23 to 41 ozs. S. pr. ton.—*Char.*, au. qtz., iron py., galena and carb. C.

Produces large amounts of galena. Is more a silver-lead, than a gold lode. 120 tons of ore (stamped) returned 90 ozs. G. gross. Three shafts, deepest 125 ft.—*Cab. Spe.*, 247.

GREGORY DISTRICT.

AETNA LODE.—*Shafting*, 116 ft.—*S. Drift*, 180 ft.—*Cre.*, $3\frac{1}{2}$ to 5 ft.—*P.V.*, 8 to 22 ins.—*Assay*, $\frac{1}{2}$ to 1 oz. G., and 28 to 40 ozs. S. pr. ton, and 50 to 70% lead.—*Yield*, $\frac{1}{4}$ to $\frac{1}{2}$ oz. G. pr. ton.—*Char.*, iron and C. py., zinc, and galena.

Ore stamped, returns very low, \$5 to \$8 G. per ton only, while sold for smelting \$50 per ton is realized, paying owners twice over expenses. Has a connecting tunnel or drift run to bottom of deepest shaft—*Cab. Spe.*, 139.

BRIGGS.—*Shafting*, 1,153 ft.—*Levels*, 3,162 ft.—*Cre.*, $3\frac{1}{2}$ to 6 ft.—*P.V.*, 10 to 32 ins.—*Assay*, $2\frac{1}{2}$, 4, 7, and $8\frac{1}{10}$ ozs. G., and 8, 16, 25 to 39 ozs. S. pr. ton, and 7 to $13\frac{1}{2}$ % C.—*Yield*, $\frac{1}{2}$, $\frac{3}{4}$, 1 and $1\frac{1}{10}$ ozs. G., and \$100 to \$114 for G., S., and C. pr. ton.—*Char.*, galena, zinc, and iron and C. py.

Is an early discovery. Several companies are owners, working separately much too limited extent of territory for the *largest* profit, yet is valuable for each owner *even* under the present most reprehensible system, possessing as it does very *great productive power*. 29½ cords (about 236 tons) of low grade ore, stamped, returned 215 ozs. G. gross. All smelting ore sold realizes \$100 to \$114 per ton. Four years and 11 months working, returned total \$534,615 G., (this for one Company,) losing all S., C., and lead contained in product treated. Six months' yield (1st February, to 1st August, 1869,) gave 2,884 ozs. G., while three weeks production of low grade ore for the Smith and Parmelee Co. realized 404½ ozs. G. gross, all 1st class ore being claimed to be returned for dividend. The author has seen six days stamping, on really the poorest product of the "S. and P." mine, result in a yield of 179 ozs. G., the next seven days being followed with 420 ozs. G., and two subsequent weeks with 7½ ozs. G. realized from each cord of ore treated; while paying himself \$114 per ton, for 21½ tons of smelting ore, (forwarded on account of the B.C.M.B., to the Messrs. Bath's at Swansea.) £848 4s. total was realized, the assay being 9 ozs. 2½ dwts. G., 27 ozs. S. per *English* ton, and 9 % C.—net weight, (*dry*) 42,193 lbs. Four weeks run on ore (for Briggs Brothers,) returned \$17,000. The several companies mining have large piles of mill tailings on hand, valued at \$50 to \$75 per ton. Total product in 30 months from 400 ft. extent, by 200 ft. average depth, 1,200 (Troy) lbs. G. Assay of specimens sent to the Paris World's Exposition of 1867 (from 2½ ft. Cre., 365 ft. deep,) showed 11½ ozs. G., and 22½ ozs. S. per ton. Several shafts, deepest 485 ft.—*Cab. Specs.*, 140.

BOBTAIL.—*Shafting*, 2,950 ft.—*Levels*, 7,105 ft.—*Cre.*, 4 to 10 ft.—*P. V.*, 6 to 36 ins.—*Assay*, \$37, \$57, \$90 to \$394, and \$714 G. and S. with 22 to 28% C., and (by B.C.M.B.) 6 ozs. G., 24 ozs. S. pr. ton, and 37 % C.—Yield $\frac{7}{10}$, $1\frac{1}{10}$, $1\frac{3}{4}$, $2\frac{3}{4}$ ozs. G., and \$32, \$40, \$50, \$200 and \$225 pr. ton.—*Char.*, au. iron, galena, zinc, and black oxyd C.

Is an old 1859 discovery.—6 tons of ore stamped, returned 15½ ozs. G. gross; 190 tons, 380 ozs., and 100 tons (roasted and amalgamated) \$5,000; while a test 70 tons, forwarded by purchasers to Swansea, is reported to have realized a profit to shippers of \$8,886. When first mined, the product (a decomposed quartz or dirt) was hauled to water on ox sleds, and puddled, yielding sometimes as high as 20 ozs. G. per load; headings and tailings returning under stamps \$90 to \$100 per ton additional. Gold is reported found existing as a double sulphide, and the more frequent, as depth in the several workings has been gained. Ore generally highly cupriferous and rich in purple copper. Is owned by several Companies. A tunnel at this present in 840 ft. is being run to cut the lode 1,120 ft. from mouth, and 580 ft. deep. Total yield to date, \$2,900,000. *Cab. Spe.*, 132.

ELLIETH.—*Shafting*, 180 ft.—*Drifts*, 269 ft.—*Cre.*, 5 to 16 ft.—*P.V.*, 7 to 18 ins.—*Assay*, (by B.C.M.B., *mixed iron, Py. and gange*) $\frac{1}{4}$ oz. G. and $1\frac{3}{4}$ ozs. S., and $2\frac{1}{4}$ ozs. G. and 8 ozs. S., and (*iron and C. py.*) $2\frac{6}{10}$ ozs. G. and 14 ozs. S., and $3\frac{1}{4}$ ozs. G. and 13 ozs. S. pr. ton—*Yield*, 1 to $1\frac{1}{4}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., fine grained galena, and silicated qtz.

Is actively worked and paying. Yield of one shaft, 3 cords of ore per day, returning under stamps 21 ozs. G. gross. Total expense less than one-half the value of product. Is owned by several companies, who both lease and work. *Gov. P.T.* secured. Several shafts, deepest 100 feet.—*Cab. Spe.*, 125.

GREGORY.—*Shafting*, 2,072 ft.—*Levels*, 11,400 ft.—*Cre.*, 3 to 7 ft.—*P.V.*, 8 to 24 ins.—*Assay*, $2\frac{1}{2}$, 3, $4\frac{1}{4}$, 5 to $23\frac{1}{2}$ ozs. G., and 11 to 13 ozs. S. pr. ton, and 5, 9 and $11\frac{5}{8}$ C.—*Yield*, $\frac{1}{4}$ to $1\frac{3}{4}$ ozs. G., and \$51 to \$102 pr. ton.—*Char.*, au. iron and C. py., galena, chalcopryite, and crystal qtz.

Is an old discovery, the first which established the fact of gold lodes, or veins of auriferous quartz existing in Colorado, J. H. Gregory, its discoverer, giving his name to the lode, while the miners following after him, gave his name to the District. Has always proved very productive and paying. 216 tons Ore stamped, returned $544\frac{1}{2}$ ozs. G. gross; 100 tons, $193\frac{3}{4}$ ozs., and 465 tons, 819 ozs. Several Companies working. Yield in 1869, (realized principally by the Black Hawk Company) \$320,000, since which time (until lately, on account of the small extent of territory owned by each operating party on the lode,) the different mines have been but little worked. Total value of product from first working to date, \$2,200,000.* The Black Hawk Mining Company (the principal Company working), has had returned to them gross from four years operation, \$1,358,149—*Cab. Spes.*, 141, from this lode are very fine, No. 141a being a beautiful quartz nugget, showing fully one half gold.

GERMAN.—*Shafting*, 1,240 ft.—*Levels*, 690 ft.—*Cre.*, 6 to 11 ft.—*P.V.*, 6 to 32 ins.—*Assay*, $1\frac{3}{4}$, $2\frac{1}{2}$, $4\frac{1}{2}$ to 40 and 171 ozs. G., and *yield*, $2\frac{1}{4}$, $3\frac{3}{4}$, and 5 ozs. G. pr. ton—*Char.*, free gold qtz., with iron and C. py. slightly intermixed.

Is one of the most valuable of free gold lodes. 3,900 tons of quartz stamped, returned 8,775 ozs. G. gross. Yield by sluicing of surface ore has always been good, sometimes remarkable, \$35 to \$240 per day (employing 4 to 6 men) having been frequently returned to owners of claims, while from headings and tailings sold \$75 to \$85 per cord. have additionally been realized. Three pans

* This total, as almost in every other return made, has only been realized after a sacrifice (through imperfect treatment) of 50 to 60 per cent. of the gold value, besides all the silver, copper, and lead contained in the ore, being lost, and to save which no attempt has ever been made.

of dirt, lately washed, gave $6\frac{1}{2}$ ozs. G., and one pan $4\frac{3}{4}$ ozs. Has yielded large numbers of very fine nuggets, also some beautiful specimens of crystallized gold. Twenty-two shafts, deepest 225 ft.—*Cab. Spes.*, 704, all show gold.

MAMMOTH.—*Shafting*, 966 ft.—*Levels*, 1,020 ft.—*Cre.*, 4 to 10 ft.—*P.V.*, 9 to 40 ins.—*Assay*, \$5, \$21, \$30 to \$42, and (se. spe.) \$400 G. and S. pr. ton, and 6 to 21% C.—*Yield*, 1 and $1\frac{1}{4}$ ozs. G. pr. ton—*Char.*, au. iron and qtz., sulphide C. and galena.

Possesses great strength, and is supposed to be a *central* lode, into which as from survey of their several courses, the Gregory, Gregory Hill, Bledsoe, Peck and Thomas, and other well-known lodes of this district will run, and probably be absorbed, but beyond their present recorded territories. Claim No. 4 (100 ft.) yielded \$40,000, while the total product of No. 7 averaged a return of $1\frac{1}{4}$ ozs. G. per ton—*Cab. Spe.*, 128.

ILLINOIS CENTRAL DISTRICT.

ALPS LOBE.—*Shafting*, 945 ft.—*Levels*, 1,850 ft.—*Cre.*, $1\frac{1}{2}$ to 4 ft.—*P.V.*, 5 to 24 ins.—*Assay*, $1\frac{3}{4}$ to $4\frac{1}{10}$, and $12\frac{1}{2}$ ozs. G., and 5 to 15 ozs. S. pr. ton, and 5 to 20% C.—*Yield*, 1, 3, $3\frac{3}{4}$, 4, and $9\frac{3}{4}$ ozs. G. pr. ton—*Char.*, au. iron and C. py.

The surface ore of this lode, which is a ferruginous quartz, has yielded largely free gold. 60 tons (stamped) returned $180\frac{1}{2}$ oz. G. gross; 550 tons, 2,087 ozs.; 218 tons, 881 ozs.; and 4 tons, $39\frac{3}{4}$ ozs.; while sold for smelting, the ore at this present realizes \$94 to \$160 per ton. 2nd class ore (treated at the Leavenworth Mill,) yields an average of 1 oz. G. per ton. Capacity, 245 tons per month. The Mackey is the east extension of this lode.—*Cab. Spe.*, 195, from this lode is very fine, and is of a kind called by miners "peacock ore."

GARDNER.—*Shafting*, 540 ft.—*Levels*, 1,050 ft.—*Cre.*, 4 to 6 ft.—*P.V.*, 2 to 10 ins.—*Assay*, 2 to 5 and $8\frac{1}{4}$ ozs. G. and 7 to 29 ozs. S. pr. ton—*Yield*, $\frac{1}{2}$ to $1\frac{1}{4}$, and 5 ozs. G., and 21 ozs. S. pr. ton.—*Char.*, au. iron and C. py. and S. lead.

All product is sorted into two classes and made available; the 1st grade being sold for smelting, and the 2nd "milled." Absorbed the "Sugar Plum" lode. Ore carries a high per cent. of copper. Three shafts, deepest 260 ft.—*Cab. Spe.*, 218.

ILLINOIS.—*Shafting*, 1,070 ft.—*Levels*, 1,910 ft.—*Cre.*, 3 to 4 ft.—*P.V.*, 10 to 30 ins.—*Assay*, $1\frac{1}{4}$ to $2\frac{1}{2}$ ozs. G., and 6 to 12 ozs. S. pr. ton, and 12 to 29% C.—*Yield* (2nd class) $1\frac{1}{10}$ ozs. G., and (1st class) sold for smelting, \$73 pr. ton.—*Char.*, au. iron py., oxyd C., and S. lead.—*Cab. Spes.*, 186 are very fine.

LAKE DISTRICT.

GOLDEN EAGLE LODGE.—*Shafting*, 325 ft.—*Levels*, 550 ft.—*Cre.*, 2½ to 6 ft.—*P.V.*, 9 to 24 ins.—*Assay*, 1½ to 8 ozs. G., and 3 to 15 ozs. S. pr. ton.—*Yield*, $\frac{9}{10}$, $1\frac{1}{10}$, $1\frac{3}{4}$, and 6 ozs. G. pr. ton.—*Char.*, au. iron py., free G. qtz., and S. lead.

Carries considerable dirt which “pans” well. Sluice and mill returns average high, ranging from 12½ to 39 ozs. G. per cord. Is easily and profitably worked. Three shafts, deepest 185 ft.—*Cab. Spes.*, 158.

NEVADA DISTRICT.

BURROUGH'S LODGE.—*Shafting*, 1,620 ft.—*Levels*, 9,500 ft.—*Cre.*, 3 to 7 ft.—*P.V.*, 5 to 30 ins.—*Assay*, 1 to 2½ ozs. G., and 8 to 15 ozs. S. pr. ton.—*Yield*, $\frac{6}{10}$ to 1 oz. G. pr. ton.—*Char.*, au. iron and C. py., S. lead, and zinc.

This lode has been cut by the Lacrosse Tunnel. Is owned by several Companies. Capacity 300 to 500 tons per week; milling all 2nd, and selling all 1st class ore, the latter realizing net \$94 to \$100 per ton. Average yield of the several mines 6 tons of undressed ore per fathom, costing for stoping \$26, and other expenses \$18. Total value of product in eleven years, \$3,975,000. Nine shafts, deepest 560 ft.—*Cab. Spe.*, 224.

BEVERLY AND CONNELLY.—*Shafting*, 180 ft.—*Cre.*, 2½ to 4 ft.—*P.V.*, 3 to 8 ins.—*Assay*, \$50, \$65, and \$75 G. and S., and *yield*, $\frac{3}{4}$ oz. G. pr. ton.—*Char.*, au. iron and C. py., galena, zinc, and silicated qtz.

Has been opened every 50 ft. of its extent. 200 tons of ore stamped, returned 150 ozs. G. gross. Carries more of a roasting and smelting than a mill ore. Eight shafts, deepest 70 ft.—*Cab. Spe.*, 183.

CENTRAL.—*Shafting*, 215 ft.—*Cre.*, 2 to 7½ ft.—*P.V.*, 5 to 20 ins.—*Assay*, 1, $1\frac{1}{4}$ to $2\frac{3}{4}$ ozs. G., and 5, 9, and 14 ozs. S. pr. ton, and 5 to 15% C. *Yield*, $\frac{1}{2}$, 1, $1\frac{3}{4}$, to 3 and $3\frac{3}{4}$ ozs. G. pr. ton.—*Char.*, au. iron and C. py., sulph. lead, granular feldspar and white qtz.

Is a very reliable and productive mine. 9½ tons, (stamped,) returned 20¾ ozs. G. gross; 34 tons, 111¼ ozs.; 41 tons, 153 ozs.; 73 tons, 74 ozs.; and 626 tons, 503 ozs. Average yield of 1st class ore, 1½ to 4 ozs. G. per ton; 2nd class, $\frac{3}{4}$ oz; and 3rd class, $\frac{1}{2}$ oz. Productive power 5 tons per fathom. Owners in sinking main shaft, realized a profit over every expense. Is actively worked and paying.—*Cab. Spe.*, 721.

CALIFORNIA.—*Shafting*, 1,822 ft.—*Levels*, 2,240 ft.—*Cre.*, 4 to 6 ft.—*P. V.*, 12 to 30 ins.—*Assay*, $\frac{3}{4}$ to $3\frac{1}{2}$ ozs. G., and 9 to 18 ozs. S. pr. ton, and 5 to 13% C.—*Yield*, $\frac{1}{2}$, $1\frac{1}{4}$, $1\frac{3}{4}$, and $2\frac{1}{2}$ ozs. G. pr. ton—*Char.*, au. iron, and C. py., zinc, and galena.

Is a strong main lode, sustaining a good reputation both for productiveness and value. Has been purchased (extent 600 ft.) by an English Company, who are actively working. Returned in 21 months \$566,136 gross; which, less 46% for expenses, realized net for owners \$306,301. In a late trial working, 4 men (set in an average part of the mine) extracted in two days 24 tons of ore, which being treated, returned \$449 net profit. One-tenth of the total product is smelting ore, worth variously \$50 to \$110 per ton. Keeps 80 stamps constantly running on 2nd class ore. Absorbed the Hidden Treasure lode. Has returned in total value of product to date over \$1,000,000—*Cab. Spe.*, 722.

FORKS.—*Shafting*, 1,310 ft.—*Levels*, 2,150 ft.—*Cre.*, 3 to $4\frac{1}{2}$ ft.—*P. V.*, 6 to 30 ins.—*Assay*, \$20 to \$700 G. and S. pr. ton, and 5 to 14% C.—*Yield*, $\frac{3}{4}$ to $1\frac{1}{4}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., S. lead, and zinc.

Average production 25 tons per day, one-fifth being smelting ore, realizing when sold \$35 to \$50 per ton. This mine has produced some very fine specimens of sulphuret of lead. Eight shafts, deepest 400 ft.—*Cab. Spes.*, 717, are very fine, No. 717a being a large and beautiful mass.

KANSAS.—*Shafting*, 1,183 ft.—*Levels*, 2,109 ft.—*Winzes*, 820 ft.—*Cre.*, 2 to 11 ft.—*P. V.*, 6 to 32 ins.—*Assay*, $\frac{6}{10}$, $1\frac{6}{10}$, $8\frac{1}{4}$, 14 and 21 ozs. G., and $1\frac{1}{2}$ to 11, and 35 ozs. S. pr. ton, and 5 to 9% C.—*Yield*, (1st Class) $20\frac{1}{4}$ ozs. G., and $34\frac{1}{2}$ ozs. S.; (2nd Class) $9\frac{4}{10}$ ozs. G., and 25 ozs. S., and (3rd Class) 4 ozs. G., and 13 ozs. S., pr. ton.—*Char.*, au. iron, and C. py., arsenides of C. and iron, sulphs. and galena, carried in a fine soft gangue of qtz. and feldspar.

Is owned and actively worked by one English and several American companies, the former owning Nos. 6, 7, 8 and 9, east from discovery. Has been long considered productive. Includes interests that are dividing large profits to owners. One company operating has returned to them \$1,600 to \$2,000 per day. 43 tons of ore stamped, realized for owners, 53 ozs. G. gross; 618 tons, 797 ozs.; 81 tons, $128\frac{1}{2}$ ozs., and 180 tons, $2,949\frac{3}{4}$ ozs. (losing $\frac{1}{2}$ to $\frac{3}{4}$ oz. G., from imperfect treatment, on every ton of product milled), while $166\frac{1}{2}$ tons of smelting ore, averaged a return of $\$43\frac{4}{10}$ per ton, or gross \$7,231. To the present $1\frac{3}{10}$ ozs. has been the per ton yield of all mill ore, and \$50 per ton the average of all sold for smelting. One company working on lease, employing 19 hands, and producing 4 cords, or about 24 tons of ore per day, netted a profit of \$10,000 last June; while another company,

also leasing, but working only 150 ft., paying 10% of gross yield as royalty, divided in 2½ months (May 1st to July 16th) \$16,483 as net profit. The last yield reported from this lode, is a ten days' run on ore, returning 300 ozs. G. gross—*Cab. Spe.*, 235.

LORD BYRON.—*Shafting*, 125 ft.—*Cre.*, 4 ft.—*P.V.*, 10 to 20 ins.—*Assay*, $\frac{7}{10}$ oz. G. and 560 ozs. S., $1\frac{3}{4}$ ozs. G. and 54 ozs. S., $3\frac{1}{4}$ ozs. G. and 188 ozs. S., and $9\frac{9}{10}$ ozs. G. and 63 ozs. S., and (by B. C. M. B.) $18\frac{3}{4}$ ozs. G. and $130\frac{1}{4}$ ozs. S. per ton, and 46 % lead—*Yield*, $3\frac{3}{4}$ ozs. G. pr. ton—*Char.*, au. iron, C. py., S. lead, and zinc.

Has been opened on every 100 ft. of extent, promising to return well on the carrying out of any well devised plan of development. 2nd class ore, under stamps, has returned 30 ozs. G. per cord; and 1st class, when sold, \$60 per ton. Is undeniably a strong main "fissure." Three shafts, deepest 85 ft.—*Cab. Spes.*, 212, are very fine, 212a being the duplicate half of the specimen that assayed $18\frac{3}{4}$ ozs. gold per ton.

RODERICK DHU.—*Shafting*, 525 ft.—*Levels*, 670 ft.—*Cre.*, 3 to 5 ft.—*Assay*, \$85 to \$300 G. and S. pr. ton, and 10, $16\frac{1}{2}$, and 20 % C.—*Yield*, $\frac{1}{2}$ to $1\frac{1}{4}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., arsenical C., S. lead, and zinc.

Shows a strong crevice. Has been actively worked for eight years. The Lacrosse Tunnel, (*now run 1,000 ft.*) will reach this lode 1,200 ft. from its mouth, and nearly 500 ft. below the surface. 25 tons smelting ore sold, realized \$3,250 gross. A contract has been set for sinking main shaft down to 1,000 ft. Capacity, 420 to 500 tons per month.—*Cab. Spe.*, 237.

RUSSELL DISTRICT.

CLIFTON LODE.—*Shafting*, 230 ft.—*S. Drifts and Levels*, 644 ft.—*Winze*, 25 ft.—*Cre.*, 5 to 7 ft.—*P.V.*, 10 to 24 ins.—*Assay*, (*Gossan*), 9, 17, 21, and 36 ozs., (*mixed mineral*), 37 and 55 ozs., (*pure galena*), 56 ozs., (*avg. four samplings*), 65 ozs., (*carb. C.*), 97 and 141 ozs., and (*se. spes.*) 300, 320, and 360 ozs. S. pr. ton—*Yield*, $37\frac{1}{2}$ and 84 ozs. S. pr. ton—*Char.*, fine grained galena, blue and green carb. C., zinc, au. iron py., and antimony.

Is a strong main lode, well defined, and unmistakable as to strength and character. The Owatowa and Rara Avis lodes are west extensions of this vein, on the latter of which are 178 ft. of shafting, and 195 ft. of levels. Crevice large, carrying 4 out of 7 ft. of pay, capable of returning, (as per estimate of Prof. C. S. Richardson,) 12 tons per fathom of ground, the material being a strong galena carrying some gold. 55,560 lbs. of ore sold for smelting, yielded 1,041 ozs. S. gross; and 44,000 lbs.,

1,857 ozs. Has just been reached by a cross-cut tunnel, length 188 ft. All ore is piled; and when the author visited this mine to examine it, in February last, there was at least 1,000 tons on hand, worth at a low estimate £7,000: Has been purchased by an English company, who also own and work the Owatowa, Rara Avis, and Severn lodes, the latter parallel with and within 100 ft. of the "Clifton."—*Cab. Spe.*, 713.

DAKOTA.—*Shafting*, 76 ft.—*Cre.*, 4 ft.—*P.V.*, 20 to 40 ins.—*Yield*, $\frac{1}{2}$ to $\frac{3}{4}$ oz. G. pr. ton—*Char.*, au. iron qtz.

10 tons of ore (stamped,) returned $3\frac{1}{2}$ ozs. G. gross, and 20 tons, 16 ozs. Crevice fully two-thirds pay. Two shafts, deepest 60 ft.—*Cab. Spe.*, 725.

PEWABIC.—*Shafting*, 580 ft.—*Levels*, 790 ft.—*Cre.*, 5 to 7 ft.—*P.V.*, 10 to 24 ins.—*Yield*, 2 to $5\frac{1}{2}$ ozs. G. pr. ton, and 10 to 23% C.—*Char.*, au. iron and C. py., carb. C., and fine grained galena.

The top quartz of this lode yielded extraordinary well, returning as a usual average, $2\frac{1}{2}$ to 3 ozs. G. per ton. Present product, largely a smelting ore. Has been opened by numerous shafts. Gov. P.T. (in the interest of the several owners) obtained, granting 3,000 ft.—*Cab. Spe.*, 179.

JEFFERSON COUNTY.

BERGEN DISTRICT.

ARGENTINE LODGE.—*Shaft*, 55 ft.—*Cre.*, 5 ft.—*P.V.*, 3 ft.—*Char.*, galena, silicate C., and C. py., with chalcedony and fluorspar mixed—*Cab. Spe.*, 644.

COMMERCIAL.—*Shaft*, 25 ft.—*Cre.*, 20 ft.—*P.V.*, 24 ins.—*Assay*, G. a trace, and 33% C.—*Char.*, carb. of C., and iron py.

Crevice in places, shows 30 ft. wide on the surface—*Cab. Spe.*, 728.

CHICKAMAUGA.—*Shaft*, 10 ft.—*Cre.*, 4 ft.—*Char.*, fluorspar and hard qtz., carrying carb. of C., and C. glance—*Cab. Spe.*, 729.

GRIZZLY.—*Shaft*, 30 ft.—*Cre.*, 4 ft.—*Assay*, 1 oz. G., 15 ozs. S., and 31% C.—*Char.*, iron py., carb. and silicate C., and galena.

Surface shows large quantities of scattered quartz. Is traceable for a long distance—*Cab. Spe.*, 730.

MALACHITE.—*Shaft*, 33 ft.—*Cre.*, 4 ft.—*P.V.*, 16 ins.—*Assay*, 5 to 23 ozs. S., and 12 to 22% C.—*Char.*, galena, and carb. C.

Has produced some very fine specimens of malachite C.—*Cab. Spe.*, 737.

POCAHONTAS.—*Shaft*, 36 ft.—*Cre.*, $3\frac{1}{2}$ ft.—*Char.*, C. py., carried in a granular feldspar and qtz.—*Cab. Spe.*, 731.

REVENUE.—*Shaft*, 12 ft.—*Level*, 50 ft.—*Cre.*, 5 ft.—*Char.*, pyriteous C. qtz., and fine grained galena.

Crevice very large, but not fully defined. Should be further opened.—*Cab. Spe.*, 732.

SHAKESPEAR.—*Shaft*, 10 ft.—*Cre.*, 3 ft.—*Char.*, pyriteous C., fluor-spar, and qtz.—*Cab. Spe.*, 733.

TRUMP.—*Shaft*, 10 ft.—*Cre.*, $3\frac{1}{2}$ ft.—*P. V.*, 18 ins.—*Char.*, carb. and black oxyd. C.

Produces beautiful specimens of azurite and malachite copper.—*Cab. Spe.*, 734.

VALPARAISO.—*Shaft*, 10 ft.—*Cre.*, $3\frac{1}{2}$ ft.—*Assay*, 16 ozs. S. and 20% C.—*Char.*, pyriteous iron and carb. C.—*Cab. Spe.*, 735.

WISCONSIN.—*Shaft*, 20 ft.—*Cre.*, 4 ft.—*Assay*, 11 ozs. S. and 9% C.—*Char.*, galena, C. py., and feldspar.

Is a very strong lode, being traceable for over a mile, with three "extensions" recorded.—*Cab. Spe.*, 739.

WARSAW.—*Shaft*, 10 ft.—*Cre.*, 4 ft.—*P. V.*, 15 ins.—*Assay*, $\frac{3}{16}$ oz. G., 21 ozs. S., and $12\frac{1}{2}$ % C.—*Char.*, green and blue carb. C., galena, fluorspar, and qtz.—*Cab. Spe.*, 736.

COAL CREEK DISTRICT.

PARTRIDGE LODE.—*Shaft*, 18 ft.—*Cre.*, 14 ft.—*P. V.*, 9 ft.—*Assay*, 3 to 8 ozs. S. pr. ton, and 17 to 24 % C.—*Char.*, green carb. and silicate C., gray and purple sulpt. C., and C. glance, carried in a gange of black, brown, pearly and blue qtz., with hornblende, feldspar, crystals of fluor, and manganate of lime intermixed.

Is the largest and most valuable copper lode known at this present in Colorado. Professor C. S. Richardson in an estimate of capacity says, the producing power of this mine is equal to 26 tons of pay ore per cubic fathom of ground.—*Cab. Spe.*, 738.*

NOTE.—There are other copper districts in this county, for instance, "Tucker Gulch," "Biber Creek," "Golden City," &c, but not having visited their mines, and having no collected information about them, I am unable to give any facts in reference to them. I once visited, some four years ago, two copper lodes—one of them showing considerable malachite copper—situated near the Central City road, 3 miles above Golden, but not having my memorandum of that time by me, I am prevented from any mention of them here.

* Since this work has been in the hands of the printer, it has been reported to the author that a well known firm of mining engineers in London, have stated that their information from Colorado is to the effect that there are no copper ores in the territory, outside of what Professor Hill purchased and his furnaces are abundantly able to smelt. In answer to this the author begs to say, that to his own certain knowledge there are within 10 miles of Golden more than 30 copper lodes, every one available and susceptible of immediate development, not one pound of the ore of any one of which has Professor Hill ever bought. As to the purchase by him of all the gold and silver ores containing copper, the statement is too ridiculous to need refutation.

LAKE COUNTY.

CALIFORNIA GULCH DISTRICT.

BERRY (TUNNEL) LODE.—*Surface Drift*, 110 ft.—*Cre.*, $3\frac{1}{2}$ to 5 ft.—*P.V.*, 8 to 30 ins.—*Assay*, 2, $3\frac{1}{2}$, and $8\frac{1}{2}$ ozs. G., and 18, 23, and 30 ozs. S. pr. ton.—*Char.*, au. iron and qtz., py. C., galena, and zinc, carried in a feldspar gänge.

Ownership in this lode, is divided into twelve shares of interest.—*Cab. Spe.*, 740.

FIVE-TWENTY.—*Shafting*, 140 ft.—*S. Dft. and Levels*, 220 ft.—*Cre.*, 2 to 3 ft.—*Assays*, $2\frac{1}{2}$ to 20 ozs., and *yield*, $1\frac{1}{2}$ to 2 and $3\frac{3}{4}$ ozs. G. pr. ton.—*Char.*, free G. qtz. and dirt.

The ore of this lode pays well to sluice, and to work (headings and tailings) in an arrastra, yielding 10 ozs. G. per cord; but does not return expenses, treated under stamps. Three shafts, deepest 100 ft.—*Cab. Spe.*, 741.

PILOT.—*Shafting*, 142 ft.—*S. Dfts. and Levels*, 420 ft.—*Cre.*, 4 to 14 ft.—*P.V.*, $1\frac{1}{2}$ to 7 ft.—*Yield*, $2\frac{1}{4}$ to 16 ozs. G. pr. ton.—*Char.*, au. qtz. and dirt.

Is one of the finest gold lodes in Colorado, and, excepting its near neighbour the "Printer Boy," is probably the best paying. 125 tons (sluiced) returned $437\frac{1}{2}$ ozs. G. gross, not including headings and tailings, which were saved for milling. Has produced many fine specimens of crystallized gold, The First National Bank of Denver at one time receiving over 100 ozs.; also has produced masses of wire gold weighing 4 to 13 ozs.—*Cab. Spes.*, 742.

PRINTER BOY.—*Shafting*, 488 ft.—*Levels*, 1,090 ft.—*Cre.*, $2\frac{1}{2}$ to 5 ft.—*P.V.*, 6 to 22 ins.—*Assay*, 1 to 100 ozs., and *yield*, $\frac{9}{10}$ to 6 ozs. G. pr. ton.—*Char.*, au. iron and qtz., malachite C., and decomposed feldspar.

As remarked in reference to the "Pilot," above noticed, this lode is one of the finest gold properties, if not actually second to no other in Colorado. Is actively worked, with 12 stopes under contract. Ore stamped, one mill with 15 heads (that it entirely supplies,) returning 22 ozs. G. per day, this for one company; while a single owner of "feet," who sluices his own product employing only two men, has repeatedly averaged for a weeks run, 20 ozs. daily. 870 tons of ore milled, realized 2,610 ozs. G. gross, and 4 tons, 72 ozs. All material outside of the "pay-streak" (so called,) together with much of the wall yield $\frac{9}{10}$ oz. G. per ton. Over 2,000 tons of ore piled. Is open on the surface for 1,800 feet, and traceable for a much longer distance, by croppings of schist, limestone, granite, and feldspar. Has absorbed the "Macomb" lode. Several shafts, deepest 25 ft.—*Cab. Spes.*, 743; No. 743a, shows native gold.

GRANITE DISTRICT.

AMAZETTE LODE.—*Shafting*, 130 ft.—*Cre.*, 1 to 3 ft.—*P.V.*, 3 to 20 ins.—*Yield*, $\frac{7}{10}$, $1\frac{3}{4}$, $2\frac{1}{4}$, and $9\frac{3}{10}$ ozs. G. pr. ton—*Char.*, au. iron and free G. qtz, talc, and decomposed feldspar.

Has a good reputation for yield and value. 102 tons of ore, (stamped,) returned 233 ozs. G. gross. 153 tons, $264\frac{1}{4}$ ozs.; 240 tons, 169 ozs.; and 18 tons, 168 ozs. Is the west extension of the Yankee Blade lode. Two shafts, deepest 80 ft.—*Cab. Spe.*, 744.

BONA NZA.—*Shafting*, 85 ft.—*Cre.*, 2 to 5 ft.—*P.V.*, 6 to 14 ins.—*Assay*, $3\frac{1}{2}$ to 11 ozs., and *yield*, 1 to $1\frac{1}{2}$ ozs. G. pr. ton—*Char.*, free G. qtz.

Gives every evidence, as its name indicates, of proving a fine mine. $18\frac{1}{2}$ tons of ore, (stamped,) returned $19\frac{1}{2}$ ozs. G. gross, and 6 tons, $8\frac{1}{2}$ ozs. All 2nd class ore treated yield $\frac{1}{2}$ to $\frac{7}{10}$ oz. G. per ton. Is opened on the surface for over 500 ft. Has produced some beautiful specimens, showing native gold. Two shafts, deepest 75 ft.—*Cab. Spes.*, 745.

HATTIE JANE.—*Shafting*, 195 ft.—*Levels*, 145 ft.—*Cre.*, 2 to $3\frac{1}{2}$ ft.—*P.V.*, 6 to 11 ins.—*Yield*, $1\frac{1}{2}$ to $5\frac{1}{2}$, and 7 ozs. G. pr. ton—*Char.*, free G. qtz., carrying py. iron, galena, and carb. C.

Is an easy and most profitable mine to work. 60 tons of ore, (stamped,) returned $252\frac{1}{2}$ ozs. G. gross, and 25 tons, 98 ozs. Has produced some beautiful specimens, showing native gold embedded in the iron pyrites and crystals of magnetic iron with which this mine abounds. Three shafts, deepest 60 ft.—*Cab. Spes.*, 559.

JOHNSTONE.—*Shafting*, 50 ft.—*Cre.*, 2 to $3\frac{1}{2}$ ft.—*P.V.*, 7 to 16 ins.—*Yield*, $2\frac{1}{2}$ to 5 ozs. G. pr. ton—*Char.*, au. iron and qtz.

One lot of 18 tons of ore (stamped,) yielded 90 ozs. G. gross.—*Cab. Spe.*, 749.

MOUNTAIN GEM.—*Shafting*, 105 ft.—*Cre.*, 2 ft.—*Assay*, 3 to $7\frac{1}{4}$ ozs., and *yield*, 2 to $4\frac{6}{10}$ ozs. G. pr. ton—*Char.*, au. iron and qtz.

Shows fine, and should be worked to full capacity. Two shafts, deepest 90 ft.—*Cab. Spe.*, 750.

MONARCH.—*Shaft*, 30 ft.—*Cre.*, 3 ft.—*P.V.*, 10 to 15 ins.—*Yield*, $1\frac{6}{10}$ ozs. G. pr. ton—*Char.*, free G. qtz.

Three small lots, aggregating 6 tons of ore (stamped,) returned $9\frac{1}{2}$ ozs. G. gross. Is one of two extensions of the "Yankee Blade" lode.—*Cab. Spe.*, 751.

MANHATTAN.—*Shaft*, 75 ft.—*Cre.*, 2 to 4 ft.—*P.V.*, 3 to 14 ins.—*Assay*, \$18, \$29, and \$81 G. and S., and *yield*, $1\frac{1}{4}$ ozs. G. pr. ton—*Char.*, au. iron and qtz., galena, zinc, and malachite C.—*Cab. Spe.*, 752.

RISEING SUN.—*Shaft*, 50 ft.—*Cre.*, 2 to 3 ft.—*Yield*, $\frac{7}{10}$, $\frac{3}{4}$, to $2\frac{3}{4}$ oz G. pr. ton—*Char.*, au. iron and qtz.

One lot, $13\frac{1}{2}$ tons of ore (stamped,) returned $36\frac{3}{4}$ ozs. G. gross—*Cab. Spe.*, 753.

SPONDULIX.—*Shaft*, 30 ft.—*S. Opening*, 200 ft.—*Cre.*, 1 to $1\frac{1}{2}$ ft.—*Yield*, $1\frac{1}{4}$ to $2\frac{6}{10}$ ozs. G. pr. ton—*Char.*, au. iron and qtz.

The crevice of this lode is narrow, but is all "pay." 66 tons (stamped,) returned 132 ozs. G. gross.—*Cab. Spe.*, 754.

YANKEE BLADE.—*Shafting*, 375 ft.—*Levels*, 1,382 ft.—*Cre.*, 1 to ft.—*P.V.*, 5 to 14 ins.—*Yield*, $\frac{3}{4}$ to $3\frac{1}{4}$ ozs. G. pr. ton—*Char.* au. iron and qtz., galena, and C. py.

This lode yielded only free gold quartz down to 130 ft. in depth. Is actively worked, employing 14 miners. 322 tons of ore (stamped,) yielded 1,058 ozs. G. gross. Has produced some fine specimens of metallic gold, embedded in magnetic and pyriteous iron, also some beautiful crystals of gold. Is the east extension of the Amazette and Monarch lodes. Large quantities of ore piled. Two shafts, deepest 220 ft.—*Cab. Spe.*, 757.

PARK COUNTY.

BUCKSKIN JOE DISTRICT.

EXCELSIOR LODE.—*Shafting*, 347 ft.—*S. Drifts and Levels*, 593 ft.—*Winzes*, 300 ft.—*Cre.*, $2\frac{1}{2}$ to 18 ft.—*P.V.*, 5 to 30 ins.—*Assay*, \$29 to \$72 G. and S., and *yield*, $\frac{1}{4}$ to $\frac{1}{2}$, and $1\frac{1}{2}$ ozs. G. pr. ton—*Char.*, au. iron and qtz.

This lode is extensively opened to a depth of 617 ft. below the surface, by drifts run into the steep south-east face (angle 60 to 70°) of Mount Bross. Is a good mine, and although at one time actively, was not successfully worked. 1,200 tons of ore principally run in arrastras, returned 450 ozs. G. gross. Three shafts, deepest 130 ft.—*Cab. Spe.*, 527.

PHILLIPS.—*Shafting*, 410 ft.—*Levels and S. Openings*, 670 ft.—*Cre.*, 6 to 55 ft.—*Assay*, $1\frac{1}{2}$ to $5\frac{1}{2}$ ozs., and *Yield*, $\frac{3}{4}$ to $1\frac{1}{10}$ ozs. G. pr. ton—*Char.*, au. ferruginous qtz.

This lode at the surface, and for several hundred feet along its extent, showed a remarkable bellying of its crevice, every foot of which carried "pay," and from which in one season (sluicing and stamping,) over 10,000 ozs. G. was returned. Several shafts, deepest 185 ft.—*Cab. Spe.*, 758.

TEN-FORTY.—*Shafting*, 60 ft.—*S. Drift*, 240 ft.—*Assay*, 321 to 1,875 ozs., and *Yield*, 323 ozs. S. pr. ton.—*Char.*, carb. C., and sulph. S. in limestone.

Is quite extensively opened on the surface. Has been reached by a crossdrift, length 120 ft. Considerable ore has been mined, some having been sold for tests to smelters, and the balance piled—*Cab. Spe.*, 759.

HALL GULCH DISTRICT.

BROWNELLE LODE.—*Shaft*, 15 ft.—*Open Cut*, 16 ft.—*Cre.*, 3 to 4 ft.—*P. V.*, 2 to 5 ins.—*Assay*, (by the author, *galena and qtz.*,) 55 ozs. S. pr. ton—*Char.*, galena, zinc, and white decomposed feldspar.

Is reached by a cross-drift, disclosing a very fine crevice of vein material. Has been examined and reported upon by the author.—*Cab. Spe.*, 770.

EQUATOR.—*Shafting*, 28 ft.—*Cre.*, 5 to 6 ft.—*P. V.*, 18 to 24 ins.—*Assay*, (by the author, *galena and zinc, intermixed with gange*,) 21 ozs., (*feldspar, baryta, and qtz.*,) 22 ozs., (*fine grained galena*,) 53 ozs. S. pr. ton—*Char.*, galena and zinc, carried in a gange of feldspar, sulphate baryta, and qtz.

Is a strong main lode, showing considerable outcrop. Has been examined and reported upon by the author. Two shafts, deepest 18 ft.—*Cab. Spe.*, 771

WHALE.—*Side-hill Cutting*, 10 by 24 ft.—*Cre.*, 10 ft.—*P. V.*, 36 ins.—*Assay*, 70 and 102 ozs. (and by the author, *fine grained antimonial galena*,) 21 ozs., (*galena and feldspar*) 146 ozs., (*partially decomposed feldspar, intermixed with fine particles of mineral*,) 175 ozs., (*pure galena and gray C.*,) 190 ozs., and (*galena, zinc, and heavy spar*,) 233 ozs.—*Char.*, antimonial fine grained and coarse cube galena, gray C., zinc, and sulpts. S., carried in a gange composed of feldspar, sulphate baryta, and quartz.

Is a strong main fissure, possessing *all* the essentials of an unquestioned mining interest—among which is a width of crevice indicating great productive power, and an intrinsic value in the ore, that few mines of the strength of vein of this can show. Has been examined and most *confidently* reported upon by the author.* Late tests of product, taken from discovery, (where the

* The author aware he has been very strong in his expression of opinion of this lode, takes this occasion to say, that he has never undertaken to report a mining interest for *owners*, unless he first knew or believed it would bear the closest examination; and if after visiting the mine he found he could not give a favourable opinion, he has invariably refused to report it, there never being but one exception to this rule, and this would not have occurred, but the owner pressed him for a report favourable or unfavourable, and he would pay for it. The author, however, is willing to examine and report upon any mining property for intending purchasers, irrespective of the opinion he may be enabled to give, *as in this case it would be different*, and he is quite as willing to "check" as to be "checked." With regard to the Whale lode, the author has reported it twice, 1st for owners as to mineral character and value, and 2nd for English parties, as to the nature and full extent of the development, (accompanied with Plans and Tables of Estimates,) that can be made with an expenditure of £10,000, leaving *all reserves of ore* in the mine until required to be stoped for treatment.

work of sinking the main shaft on this mine is going forward, show 737 and 769 ozs. S. per ton.—*Cab. Spes.*, 772.

YPSILANTI.—*Shaft*, 20 ft.—*Cre.*, 5 ft.—*P.V.*, 12 to 20 ins.—*Assay*, (by the author, *galena and gange with iron py. mixed*,) 47 ozs. and (as per late test, since a recommencement of work,) 170 ozs. S. pr. ton.—*Char.*, galena, zinc, py. iron, and heavy spar.

Shows great strength of vein, and upon being further developed will open out well, and prove a most valuable mine. Has been examined and reported upon by the author.—*Cab. Spe.*, 773.

LINCOLN DISTRICT.

DWIGHT LODGE.—*Shaft*, 20 ft.—*Assay*, 233 to 515 ozs., and *yield*, 159 to 210 ozs. S. pr. ton.—*Char.*, galena and sulpts. S. in limestone.

Is opened on the surface for over 400 ft. 3 tons of ore sold for smelting, realized \$840 net.—*Cab. Spes.*, 760.

FAIRVIEW.—*Shaft*, 10 ft.—*Cre.*, 2 to 5½ ft.—*Assay*, \$72 to \$153 G. and S. pr. ton.—*Char.*, au. honey comb qtz. and heavy galena.

This lode is remarkable for carrying two ore-veins, one as distinctly silver as the other is distinctly gold.—*Cab. Spe.*, 761.

LINCOLN.—*Shafting*, 40 ft.—*Cre.*, 3 to 6 ft.—*P.V.*, 20 to 33 ins.—*Assay*, 300 to 924 ozs. S. pr. ton.—*Char.*, galena, carb. C., and sulpts. S. in limestone.

Is extensively opened on the surface. Capacity 3 to 5 tons of 1st class ore per day, showing by numerous tests a value equal to a gross daily average of not less than 750 ozs. S. All ore piled.—*Cab. Spe.*, 762.

MOOSE.—*Shafting*, 45 ft.—*Cre.*, 1½ to 3 ft.—*P.V.*, 2 to 8 ins.—*Assay*, 352, and *yield*, 232 ozs. S. pr. ton.—*Char.*, galena, and sulpts. S. in limestone.

Is actively worked, developing well. Has been opened for 460 ft. on the surface. 30 tons of ore sold to smelters, realized \$9,000 gross, while one shipment returned \$500 per ton. Ore piled in large quantities. Capacity 4 tons per day, employing 8 men.—*Cab. Spe.*, 763.

MONTGOMERY DISTRICT.

ALLEN LODGE.—*Shafting*, 270 ft.—*Cre.*, 2 to 3 ft.—*Yield*, 4½ ozs. G. pr. ton.—*Char.*, au. iron qtz.

Is one of the old discoveries of the district. 600 tons of ore (stamped,) returned 2,540 ozs. G. gross. Three shafts, deepest 150 ft.—*Cab. Spe.*, 764.

ELDORADO.—*Shafting*, 235 ft.—*Levels*, 75 ft.—*Cre.*, $1\frac{1}{2}$ to 4 ft.—*P.V.*, 12 to 26 ins.—*Assay*, $5\frac{1}{2}$ to $9\frac{3}{4}$ ozs., and *yield*, $1\frac{1}{10}$, $3\frac{1}{2}$, and 4 ozs. G. pr. ton—*Char.*, au. iron and qtz.

Is a fine mine. 114 tons of ore (stamped,) returned $126\frac{1}{2}$ ozs. G. gross; 120 tons, 420 ozs.; and $51\frac{1}{2}$ tons, 206 ozs. Five shafts, deepest 105 ft.—*Cab. Spe.*, 526.

HARRINGTON.—*Shafting*, 415 ft.—*Levels*, 110 ft.—*Cre.*, $2\frac{1}{2}$ to 5 ft.—*P.V.*, 8 to 26 ins.—*Assay*, \$102, \$128, \$140 G. and S., and (by B.C.M.B.,) $1\frac{1}{2}$ ozs. G. $9\frac{3}{4}$ ozs. S. pr. ton, and $29\frac{1}{2}\%$ C.—*Yield*, $\frac{3}{4}$ to $1\frac{1}{10}$ and $1\frac{9}{10}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., galena, zinc, and black oxyd. C., contained in a ferruginous gangue of feldspar and qtz., the latter carrying free gold at the surface.

Is owned by too many individuals and companies, to make it profitable for all to work—at least without proper concert of action, and an agreed general plan of operations. Gross yield from ore in a few months, (while being really only prospected and opened,) over 20,000 ozs. G., losing all the containing silver and copper, and returning (on account of treating without roasting, and amalgamating instead of smelting,) only 30 to 40% of the gold carried. Eight shafts, deepest 120 ft.—*Cab. Spe.*, 525.

NORTH STAR.—*Shafting*, 270 ft.—*Levels*, 30 ft.—*Cre.*, 4 to 8 ft.—*P.V.*, 30 to 60 ins.—*Yield*, $1\frac{1}{2}$, $1\frac{8}{10}$, 2, and $2\frac{1}{10}$ ozs. G. pr. ton—*Char.*, au. iron in sandstone.

Shows a strong main crevice, with nearly two-thirds of the containing material "pay." Is the highest gold mine in the world, being worked at an altitude of nearly 13,000 ft. above sea level. The immense west front (bold and magnificent,) of Mount Lincoln, faces the east half of this lode. Gross yield, from two months product of ore, 1,350 ozs. G., and total returned from sinking "discovery," (the whole distance through frozen ground,) \$60,000. Three shafts, deepest 215 ft.—*Cab. Spe.*, 766.

OGDEN.—*Shafting*, 52 ft.—*S. openings*, 70 ft.—*Cre.*, 3 ft.—*P.V.*, 4 to 15 ins.—*Assay*, $1\frac{1}{4}$ to 2 ozs., and *yield*, $\frac{9}{10}$ to 1 oz. G. pr. ton—*Char.*, au. iron and qtz.

This was the first discovered, and the first prospected gold lode in the district. Is a fair mining interest, but has neighbours that are much better. Three shafts, deepest 25 ft.—*Cab. Spe.*, 767.

PARSONAGE.—*Shafting*, 85 ft.—*S. Drifts*, 496 ft.—*Cre.*, $2\frac{1}{2}$ to 4 ft.—*P.V.*, 10 to 32 ins.—*Assay*, $2\frac{1}{10}$ to $6\frac{1}{4}$, and *yield*, $\frac{3}{4}$, $\frac{9}{10}$, and $1\frac{1}{2}$ ozs. G. pr. ton—*Char.*, au. iron and qtz.

Is a fine mining interest, and should be made, by active and continuous work, one of the best paying known. Several lots of ore (stamped) aggregating 310 tons, returned 256 ozs. G. gross, or variously from \$15 to \$18 per ton. Has been opened by three surface drifts, embraced in 800 ft. of extent. Two shafts, deepest 60 ft.—*Cab. Spe.*, 522.

MOSQUITO DISTRICT.

DE-MARY LODE.—*Shafting*, 115 ft.—*Cre.*, 4 ft.—*Assay*, $2\frac{3}{10}$ to $5\frac{1}{2}$, and *yield*, $2\frac{7}{10}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., and free G. qtz.

All product of this mine has been treated under stamps, and run in arrastras, instead of being at least roasted before amalgamated, thus saving much serious loss. Several lots of ore, aggregating $187\frac{1}{2}$ tons, returned 500 ozs. G. gross. Three shafts, deepest 60 ft.—*Cab. Spe.*, 774.

EVENING STAR.—*Shafting*, 205 ft.—*Cre.*, 2 to 5 ft.—*Yield*, $\frac{1}{2}$, $1\frac{1}{4}$, and $1\frac{9}{10}$ ozs. G. pr. ton—*Char.*, au. iron, C. py., galena, and qtz.

This lode carried only free gold quartz at the surface, but at 30 ft. in depth mineral began to come in. 120 tons of ore (stamped) returned 27 ozs. G. gross; 60 tons (run in arrastras) 75 ozs., and 12 tons, $17\frac{1}{2}$ ozs. Three shafts, deepest 160 ft.—*Cab. Spe.*, 775.

HONEYCOMB.—*Shafting*, 100 ft.—*Cre.*, 2 to 4 ft.—*Assay*, 1 to $1\frac{3}{4}$, and *yield*, $\frac{1}{4}$ to 1, and $1\frac{4}{10}$ ozs. G. pr. ton—*Char.*, au. iron and qtz.

The ore of this lode is easily mined, being near the surface much decomposed. Is a supposed extension of the Evening Star lode. Two shafts, deepest 70 ft.—*Cab. Spe.*, 528.

ORPHAN BOY.—*Shafting*, 672 ft.—*Levels*, 815 ft.—*Cre.*, 5 to 16 ft.—*P. V.*, 12 to 48 ins.—*Assay*, \$37 to \$220, and (se. spes.) \$595 to \$2,240 G. and S., and *yield*, 2 to $11\frac{1}{10}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., galena, zinc, and black oxyd. C.

Is extensively opened, everywhere showing a high producing power. Several large lots of ore (stamped, and run in arrastras) aggregating 3,670 tons, returned 6,899 $\frac{1}{2}$ ozs. G. gross; while 2,100 tons gave over 8,000 ozs., some yields of product exceeding 11 ozs. G. per ton. Has been actively worked, but awaiting the amalgamation of individual interests, to make mining on this lode, to the fullest extent profitable, it is now all but idle. Total yield in gold, from first commencement of work to date, \$300,000, losing all the containing silver and copper, and in addition, it is estimated, 40% of the gold in the ore treated, aggregating together a much larger value wasted than the gross sum realized. Eight shafts, deepest 135 ft.—*Cab. Spe.*, 529.

WAR EAGLE.—*Shafting*, 70 ft.—*Drift*, 35 ft.—*Cre.*, 4 to 6 ft.—*P. V.*, 10 to 18 ins.—*Assay*, $1\frac{3}{4}$ to $4\frac{2}{10}$, and *yield*, $1\frac{3}{10}$, $2\frac{1}{2}$, and $3\frac{3}{10}$ ozs. G. pr. ton—*Char.*, au. iron py., and qtz.

Shows well for its amount of development. 48 tons of ore (stamped) returned 88 ozs. G. gross; while run in an arrastra, the yield has been 36% additional—*Cab. Spe.*, 777.

TARRYALL DISTRICT.

BLACK EAGLE LODGE.—*Shafting*, 45 ft.—*Cre.*, 3 ft.—*P.V.*, 8 to 12 ins.—*Assay*, 5 $\frac{1}{10}$ ozs. G., and 6 $\frac{1}{2}$ ozs. S. pr. ton—*Char.*, au. iron py., galena, and zinc.

Is a promising lode. Two shafts, deepest 30 ft.—*Cab. Spe.*, 778.

BLACK WARRIOR.—*Shafting*, 46 ft.—*Cre.*, 3 ft.—*P.V.*, 6 to 15 ins.—*Assay*, \$24, \$40, and \$52 G. and S. pr. ton—*Char.*, au. iron py., galena, and gray qtz.

Has a dump and ore pile, which shows well. Two shafts, deepest 25 ft.—*Cab. Spe.*, 779.

MINERAL.—*Shafting*, 65 ft.—*S. Drifts*, 425 ft.—*Cre.*, 3 to 4 $\frac{1}{2}$ ft.—*P.V.*, 5 to 15 ins.—*Assay*, (by B.C.M.B.) 7 to 10 $\frac{1}{4}$, and *yield*, 8 $\frac{3}{4}$ ozs. G. pr. ton—*Char.*, au. iron and C. py., galena, and zinc.

Produces a *valuable* smelting ore, five test runs, returning an average of \$175 per ton in gold.—*Cab. Spes.*, 521.

WILSON.—*Shaft*, 14 ft.—*Cre.*, 5 ft.—*P.V.*, 11 ins.—*Assay*, (by B.C.M.B.) 1 oz. G. and 28 ozs. S. pr. ton—*Char.*, C. py., galena, zinc, and gray iron.

Is a strong main lode, distinctly traceable for a long distance. Has been considerably prospected, frequently showing to be 30 and 40 ft. wide.—*Cab. Spe.*, 780.

SUMMIT COUNTY.

POLLOCK DISTRICT.

QUANDARY LODGE.—*Shafting*, 30 ft.—*S. Openings*, 60 ft.—*Assay*, 20, 39, and 61 ozs. S. pr. ton, with trace of G.—*Char.*, galena, gray iron, carb. C., zinc, and black quartzite.

Has no appearance of crevice or walls, and as far as shown by a few shode pits and prospect holes, is an immense mineral ledge, covering an area hundreds of feet in extent. Should be further worked and tested, for it really promises well, and although it should prove (properly speaking) to be no lode, but a surface deposit, it will return with profit any expenditure of capital, commensurate with its requirements. Was the first known silver lode (or ledge) discovered in Colorado, but being taken up under the old law, in too limited feet by each pre-emptor, has never been developed.—*Cab Spe.*, 784.

VIRGINIA.—*Shafting*, 43 ft.—*S. Openings*, 100 ft.—*Cre.*, 4 ft.—*P. V.*, 10 to 24 ins.—*Assay*, \$175 to \$700 G. and S. pr. ton—*Char.*, galena, py. and carb. C., zinc, sulpts. S., and au. qtz.

All tests, and even mill runs of Ore return well, but the lack of suitable works for treating its product (it being more a smelting, than an amalgamating ore,) has caused it, with many other rich neighbours, to lay idle.—*Cab. Spe.*, 785.

PERU DISTRICT.

ANGLO-NORMAN LODGE.—*Shafting*, 50 ft.—*Surface Drifts*, 60 ft.—*Cre.*, 4 to 6 ft.—*P. V.*, 4 to 20 ins.—*Assay*, 38, 73, to 280, and (se. spes.) 1,090 to 14,000 ozs. S. pr. ton—*Char.*, galena, zinc, black sulpts. S., and ruby S.

Is a most valuable lode, considered in respect of its strength, extent, and quality of ore. Has produced large numbers of beautiful specimens of ruby silver, the last found, being a mass that weighed nearly 7 lbs.—*Cab. Spe.*, 797.

DECATUR.—*Shafting*, 30 ft.—*Cre.*, 3 to 5 ft.—*P. V.*, 5 to 16 ins.—*Assay*, (author's office, Georgetown, C.T., qtz. rock,) 8 ozs., (*cre. dirt*, from foot mountain,) 10 ozs., (*decomposed galena*,) 14½ ozs., (*red dirt* from discovery,) 23 ozs., (*galena and gange rock*,) 27, 35, and 36 ozs., and (*pure mineral*,) 46 and 58 ozs. S. pr. ton—*Char.*, carb. lead and C., zinc, decomposed feldspar, and gray qtz.

Is a strong main lode, traceable from the foot to the top of the Mountain. Has been opened by shode pits, or shafts, in several places, showing in all a reliable pay vein.—*Cab. Spe.*, 792.

SNAKE RIVER DISTRICT.

CHAMBERLAIN LODGE.—*Shaft*, 92 ft.—*S. Dfts. and Levels*, 140 ft.—*Cre.*, 3 to 6 ft.—*P. V.*, 20 to 40 ins.—*Assay*, 3½ to 531 ozs. S. pr. ton—*Char.*, galena, zinc, and sulpts. S.

Has a fine appearance, carrying a strong main vein. Is being reached by a crossdrift from below.—*Cab. Spe.*, 786.

COMSTOCK.—*Shafting*, 65 ft.—*Levels*, 792 ft.—*Winzes*, 75 ft.—*Cre.*, 4 to 7 ft.—*P. V.*, 10 to 42 ins.—*Assay*, 29, 46, 82, 230, and *yield*, 14 to 20 ozs. S. pr. ton, and 50 % lead—*Char.*, galena, zinc, iron py., baryta, decomposed feldspar, and white qtz.

Shows an immense strength of crevice. Has been reached by two crossdrifts, 125 and 150 ft., cutting the lode respectively at 55 and 130 ft. in depth. Twenty tons of ore (smelted) returned 10 tons of metallic lead, and 338 ozs. S. gross; and 1,475 lbs. (carefully selected) 825 lbs. lead and 500 ozs. S. Although pro-

ducing on the whole a low grade ore, the containing lead is sufficient to pay all cost of mining, leaving the silver as clear profit to the Company working.—*Cab. Spe.*, 508.

COLLIER.—*Shaft*, 20 ft.—*Cre.*, 4 to 5 ft.—*P.V.*, 5 to 11 ins.—*Assay*, 120 to 145 ozs. S. pr. ton—*Char.*, heavy galena, zinc, and green carb. C.

Is capable of a very large production, and as soon as Smelting Works on the Snake or Swan Rivers can be assured, should be actively (not occasionally only) worked. Ore piled.—*Cab. Spe.*, 788.

NAPOLÉON.—*S. Drift*, 60 ft.—*Cre.*, 3 to 4½ ft.—*P.V.*, 4 to 10 ins.—*Assay*, (by B.C.M.B.) 31 to 82 ozs. S. pr. ton, and 15 to 25% lead—*Char.*, galena, zinc, and carb. C. and iron.

Is being reached by a cross tunnel, length 200 to 250 ft. Ore sold to J. O. Stewart at Georgetown, 20 miles distant, and after being packed over the main range, realized net \$113 per ton. Owners (who during the past season have been engaged in erecting Roasting and Amalgamating Works,) will soon be treating their own product from this mine.—*Cab. Spe.*, 790.

POTOSI.—*Shaft*, 40 ft.—*Cre.*, 4 to 6 ft.—*P.V.*, 8 to 22 ins.—*Assay*, (by B.C.M.B.) 47, 88, 108, and 120 ozs. S. pr. ton, and 18 to 46% lead; and by other Assayers (se. spes.) 154 to 1,232 ozs.—*Yield*, 91 ozs. S. pr. ton—*Char.*, galena, bromide S., and red quartzite.

The future of this lode, properly opened, promises well, and should be actively worked.—*Cab. Spe.*, 501.

PRIMA.—*Shafting*, 60 ft.—*Cre.*, 4 to 7½ ft.—*P.V.*, 12 to 36 ins.—*Yield*, 42 to 154 ozs. S. pr. ton—*Char.*, galena, zinc, gray C., carb. iron, and brittle, ruby, and native S.

Promises (like many other neighbouring lodes) to return well. The carbonate of iron carried in the ore, will materially assist to flux it in smelting. Is about to be actively worked by its Boston owners. Ore piled.—*Cab. Spe.*, 789.

SILVER WING.—*S. Dfts. and Levels*, 170 ft.—*Cre.*, 4 to 5 ft.—*P.V.*, 10 to 24 ins.—*Assay*, 30 to 180 ozs. S. pr. ton—*Char.*, antimonial galena, zinc, gray C., and brittle S.

Has been reached by a tunnel run 220 ft., through which all mining is carried on. Is producing well. Ore sold for smelting, realizes \$106 per ton.—*Cab. Spe.*, 793.

SUKEY.—*Shaft*, 40 ft.—*Drifts*, 360 ft.—*Cre.*, 4½ to 6 ft.—*P.V.*, 10 to 40 ins.—*Assay*, 41, 53 to 101, and 122 ozs. S. pr. ton, and 26 to 51 % lead—*Yield*, 52 ozs. S. pr. ton—*Char.*, sulpt. lead, zinc, C. and iron py., and baryta.

Is an unexceptionably strong lode, and with works of a proper class and kind for treating product, would be valuable. 3 tons of ore, reduced by the owner's own too limited and imperfect process, returned 156 ozs. S. gross. Large quantity of ore piled.—*Cab. Spe.*, 791.

TIGER.—*Shaft*, 20 ft.—*Cre.*, 4 to 5 ft.—*P.V.*, 8 to 12 ins.—*Assay*, (*gange*.) 16 to 80 ozs., (*galena and qtz.*.) 29 ozs., and (*se. spes.*.) 601, 1,155, and 1,925 ozs. S. pr. ton—*Char.*, galena, sulpts. S., baryta, and gray quartzite.

Is a promising and a well defined lode, showing a strong main vein.—*Cab. Spe.*, 794.*

NOTE.—Summit County (a few only of whose rich lodes have, comparatively speaking, in the slightest manner possible been noticed above.) possesses not alone a mineral, but a pastoral and an agricultural wealth, that is unrivalled by any other section of country on the continent. To this region, embracing nearly one-fourth of the area of Colorado, belong a system of water courses, *large and never failing*, capable of furnishing the means of power for any amount of machinery, as well as unlimited supplies of water for hydraulic purposes, to wash the vast placer ground everywhere carrying gold, and to extract which, (aggregating millions.) will require more thousands of the hardy toilers in this pursuit than California has ever employed, and with as remunerative returns as has ever been realized in that state. Besides being thus enabled to stimulate and reward large numbers, the mountains veined and filled with vast ore channels, will furnish labour to other thousands, and cause to be secured all the capital required for their most extensive and profitable working, not for one year or a few years, but for generations, the same as has been, and is to day, the case with silver mining in Mexico, Peru, and elsewhere in the world.

En-passant, and in conclusion, as certain to influence the future, and add greatly to the interest that will expedite the development of this county, I would say that the western portion of Summit County is filled with coal measures, chiefly Albertine, and that as soon as this section of Colorado is penetrated by railways, they will be opened, and the valley of the White River become known as one of the most productive and richest of the coal basins of America.

* In bringing to a close his list of Colorado mines, the author believes he has noticed only unquestioned mining properties, from the fact that each district has its hundreds of rich lodes, from which a ready choice could be made. Also while sensible that this list is imperfect in not including many *very* valuable mines that it might, and that much more could have been said of those noticed than has been, he hopes it will be acknowledged he has been impartial and fair, and that it is on account of the present prescribed size of his Pamphlet that he has been compelled to limit himself in his remarks. Apropos to this subject, the author was asked a year ago to give an estimate of the amount of smelting ore daily produced in the territory, said estimate to include the then present capacity of the mines opened and partially developed, but unworked; and the probable future supply, with the advantages of railways for freighting and a commensurate home market for ores. After carefully considering all the facts at command, derived from information furnished, and based upon his own intimate knowledge of the mines of the various districts, he reported that the least he believed Colorado could be credited with as producing at that time, was 150 tons daily; that in two years, with the erection of ample smelting works and the completion of numerous lines of railways then inaugurated and commenced, it might be fairly supposed the supply would double, and that in five years the daily total would be 600 tons; while he saw no reason for believing other than that within a very reasonable time the full supply of smelting ore from all the Colorado mines would reach the immense aggregate of 2,700 tons per day.

The above estimate (the facts and basis for which was given in detail, with numerous extended remarks.) was by request read before the Denver Board of Trade of Colorado, and by a resolution accepted as embodying important and reliable information, and ordered to be engrossed and officially signed by the president and officers of that body,

GULCH AND PLACER MINING.

Ground sluicing and washing, in one way and another, for gold, has been not only the longest but the most profitably followed by the *individual* miner, of any of the branches or interests into which mining is divided in Colorado. Succeeding the first discovery and first active working, in 1859, of this royal metal, new discoveries were rapidly made, and before midsummer 1860, prospectors and miners swarmed everywhere along the course, from north-east to south-west, of the great metalliferous belt that in this territory cross and recross the *main* range of the Rocky Mountains, until Gulch, Placer, and Bar mining became the only occupation of thousands, and employment at a highly remunerative rate to any one who had a claim or desired work, was assured.

At this time, the same opportunity that was offered to the early prospector, is offered to day to the miner, for of the *thousands* of claims that were "staked," and immediately left to *some* other more convenient time for opening, 19 out of every 20 (never being improved) have long since been decided to be the absolute property of *any one* who shall work them, but not for ownership to continue beyond a certain limited period, if left unoccupied; and as then so now also, *any one*, not caring to mine so much on their own account as to be employed by *others*, can always rely during the season (no matter how great a *novice* he may be,) upon finding work in any of the gulches where ground sluicing for gold is in any form carried on, and at fair remuneration.

As evidence of the value of gulch mining,—an interest requiring no capital, but merely labour to give the miner (*or the novice even*,) a start—the following results are given :—

Boulder County.—On Four Mile Creek, the French boys (so called,) working one hand besides themselves, average from their "clean ups" a total of $1\frac{1}{2}$ ozs. gold per day.* On the same creek, Mr. P. B. Jackson, besides making handsomely out of his "gulching," struck lately a rich lode, the quartz from which showed pure gold, and the ore, from five feet in depth, an assay of 269 ozs. silver and 6 ozs. gold per ton. Again, three men, working principally on James Creek, earned in the last 8 years \$76,000, clear of expenses. The *Caribou Post*, speaking of Gulch mining in this County, says, "There are everywhere plenty of unoccupied claims, and those who would work them could at least make from a $\frac{1}{4}$ to $\frac{1}{2}$ oz. gold per day each.

* 1 oz. gold is worth \$20 coin—say, £4; and 1 dwt. $\$1$, or 4 shillings English.

Clear Creek County.—Quite a large number of parties are Gulch mining in this county, all realizing well. A Mr. Welch, owning on Clear Creek, also a Mr. Cameron working next above, report averaging for themselves and men this season, 8 dwts. gold per day to the hand—the first named party lately washing a 3 ozs. gold nugget from a pan of dirt.—Reeder and Wright, working 9 men near Idaho, have had returned to them *daily* thus far 11 ozs. gold gross, once averaging for two weeks $16\frac{1}{2}$ ozs., and for 5 days subsequently 33 ozs. per day.—Three men working a bar on the same creek, took out 8 ozs. gold in one day, and during the week (the first week of their working,) $21\frac{1}{2}$ ozs., the same party cleaning up twice a day, obtained subsequently in one forenoon 6 ozs. gold.—White and Co.'s claim, employing 4 men sluicing six days, yielded 51 ozs. gold, 17 ozs. being taken out in 7 hours.—Four men owning on Nebraska Bar, like many others have done well, their little earnings for the year averaging $\frac{1}{2}$ oz. gold each per day; also four others, styled Ducaille and Co., working next below, 11 dwts. gold per day each.—Mills and Co., employing 5 men on Buckeye Bar, returned 8 dwts.; Griswold and Co., on Stony Bar, working 4 men, 12 dwts., and Cooper and Co., employing several men sluicing below the Whale Mill, $\frac{1}{2}$ oz. gold per day each; while 3 men burrowing under the bar first above Idaho have averaged daily for their summer's work thus far $7\frac{1}{2}$ ozs. gold gross.—P. McMitchell, 5 miles below Idaho, reports $\frac{3}{4}$ oz.; Dean and Co., on Elk Horn Bar, $\frac{1}{4}$ oz., and a company of Swedes 6 dwts. gold per day each.—On Chicago Creek, several companies are profitably working, but for want of space I pass on, merely remarking that there are other claims as good as any above noted, which can be had by simply occupying them.

Gilpin County.—In Lake Gulch the claims of Bennett and Co., employing a gang of men, yield 8 dwts. gold per day to the man; and the "Patch diggings of Miller and Hach, north of the German lode, 7 dwts., this last, although the dirt had to be hauled some distance to water before sluicing. In Bay State district, five different companies at work gulching, are all making well, one claim employing three men yielding 11 dwts. gold per day to each hand. Shinnerman and Co., working a string of sluices on Arnett Flat, Illinois Gulch, also bed-rock in Sawpit, Russell district, clean up from the former 7 dwts., and from the latter 8 dwts. gold daily to the man. The *Central City Herald* (daily paper), speaking of Gulch mining, says:—"Our Gulch miners have many of them been taking out this season 1 oz. gold per day each, while the Pleasant Valley Company in Russell Gulch have averaged 4 ozs. per hand, proving our

Placer mining to be good, and that all who will work can find employment at largely remunerative wages."

In reference to the other mining counties—Jefferson, Lake,* Park, and Summit—Gulch mining in all (to the extent that it is carried on in each,) is prosperous, but time and space forbids my making more than this statement, and quoting in conclusion of the latter county, the following, extracted from remarks of the Hon. Stephen Decatur, published in the *Colorado Miner* of March 14th last, wherein he says, "After a careful examination of the Placer gold fields of Summit County, I am satisfied that it will take thousands of men, hundreds of years, to work them out. The Bar mines of the Blue River are many miles in extent, and although but little occupied at present, the time cannot be far distant when most of the ground drained by the Blue and its tributaries, will be worked and yield large profits. The ground from the head waters of the Blue to its intersection with Grand River in the Middle Park, embracing many miles in extent, is known to be rich in "gold-ground" that will pay from 3 dwts. to 1 ounce per day to the man. McNulty gulch, on Ten Mile; French gulch, and Georgia, Humbug, Galena, and many others, have furnished *immense* amounts of gold, and are capable of furnishing still *larger* amounts in the future."

AGRICULTURE.

Second only to mining is the agricultural interest of Colorado. The accompanying facts I give are only partial, but are such as I hope will insure consideration of their importance, among all farmers, laborers, and others, whose attention have been drawn to the question of emigrating.

Subserving and advancing as agriculture does everywhere *all* interests, the country which possesses, not simply extent, but accessibility, suitable lands, and a healthy climate, offers to the intending emigrant a guarantee for realizing all that his hopes prompts him to expect. Colorado, as it will be seen, possessing all these necessary requisites, (area, advantages of situation, pastoral and agricultural facilities, and a genial climate,) assures everything possible—possessions, employments,

* California Gulch in this country was the first that produced gold in any considerable quantity. Estimated yield in 12 years \$4,000,000. At this present 50 men are mining there to good profit, realizing from 6 dwts. to 1 oz. gold per day to the man. Those companies who are hiring would work more hands could they be obtained.

cheap living, immigration, increasing trade, growing interests, &c., which did it lack, there would be little to secure, and less to attach to the country permanently, the thousands whose hopes will probably induce them yet to leave fatherland and friends.

Of the agricultural and pastoral portions of Colorado, much may be said, but I purpose entering as little into detail as possible, and will state that the farm lands of this territory naturally divide into four great sections, separated by marked geographical boundaries, possessing each its particular and peculiar system of mountain, high land, and valley.

The *first* division embraces the valley of the Platte and its tributaries, which may properly be considered to include the South Park, extending from west to the east boundary of the territory 292 miles, by 129 miles greatest width,—the *second*, the Valley of the Arkansas, extending from above Mayol's Rancho in the mountains to the Kansas line east 321 miles, by 147 miles greatest width,—*third*, the Valley of the Rio Grande beyond the Sangre-de-Cristo range, which include the San Luis Park, extending from the base of the eastern rim of the mountains enclosing Animas Park, west, to the junction of the three counties of Conejos, Saguache, and Costilla, thence in a curve southward to the north boundary of New Mexico, 160 miles, by 104 miles greatest width,—and *fourth*, all that extensive section of country, situated beyond the *main* range of the Rocky Mountains, embracing the great Vallies of the White, Green, and Gunnison Rivers, and the North and Middle Parks, extending the full width of the territory 276 miles, and from east to west 230 miles.

All along the rivers and tributaries of these great valley sections are rich bottom lands, and a few feet higher extensive plateaus, and beyond lands more or less rolling—these last capable by *occasional* irrigation of raising in most *sure* abundance every variety of vegetables and grain, recognised as the product of temperate latitudes. I say *sure*, because where a proper system of irrigation is understood, and can be applied, the various crops raised are always the most certain and profitable.

The elevation of the lowest ground on the plains or prairies of Eastern Colorado, is 4,800 feet above the sea. The highest point possible for cultivation reaches 8,500 feet. Cultivated farms exist and profitable farming is carried on, ranging up from the valley to 7,700 and even 8,000 feet; at which last height, potatoes, rye, barley, timothy, and all vegetables, except melons, tomatoes, and corn, have grown freely, and wheat of excellent quality has been raised at the lower of these altitudes.

The following facts are adduced as evidence of the strength and capabilities of the soil of Colorado to produce.

Northern Colorado.—J. W. Wier, also Younker Crawford and McClellen, in Arapahoe County, raised respectively, (without irrigation,) 68 and 53½ bushels wheat per acre, and McLaughlin and Wilson, near Denver, indian corn 130 bushels, while A. F. Middaugh, on Clear Creek, planted potatoes that produced 500 bushels to the acre. In regard to wheat, instances have been known, (vouched for by the Denver Board of Trade,) of a yield of 100 bushels per acre, but the average, (the same authority asserts,) is 25 to 30 bushels, and of indian corn 50 bushels; a high enough return, as must be acknowledged by any farmer, and being in a country where one labourer can attend to 15 acres of wheat and 10 acres of corn during the season, a yield sufficiently productive to be thought profitable.

Mr. Hall, in his "Handbook of Colorado," says:—"The average yield of crops taking the country through, and one year with another, is found to be,—wheat, 28 bushels; corn, 25; oats and barley, 35; and potatoes, 100." "On Mr. Magnes' farm, 7 miles from Denver, the average yield per acre last year, was,—winter wheat, 37 bushels; spring wheat, 53; barley, 38; rye, 27; and potatoes 200 bushels, the seed time and harvest having been:—wheat sown April 15th, harvested August 15th; barley sown April 23rd, harvested July 26th. Hay cut in June, and winter wheat put in in October." Spring opens fully one month earlier in Colorado, than in the same latitude east of the lakes—in fact germination on the plains is measurably in ratio to the increase of longitude. Particularly was this noticeable before the advent of railroads in this territory, when freight teams leaving the base of the mountains, and subsisting on grass alone, were able as it were to follow or take their feed with them, reaching the Missouri at the earliest period at which it was possible to travel on their return westward. Seed is often sown as early as February by the farmers of Colorado.

Governor E. M. McCook, in his last message to the Territorial Legislature, said—"All that can be raised in the temperate zone, will grow in Colorado in profusion, and the soil and climate are such that the same amount of labor will produce more than in any other portion of the Union. I believe that no other country can surpass this in the *profitable* production of the cereals."

The valley of the Big Thompson, along which are some very fine farms, have yielded this season large supplies of sugar-beet, and over 80,000 bushels of potatoes, the first averaging 300,

and the last upwards of 200 bushels to the acre. Between the Big Thompson and Cache-a-la-Poudre, both tributaries streams of the South Plate River, there is at this present (as per showing of the Denver Land Office) 180,000 acres of land subject to settlement, all of which is accessible to irrigation. The Julesburg and Golden Railway *now* building will "tap" these valleys, thus opening a market, and placing them in easy communication with Denver, Central, Georgetown, and other main points.

The amount of land brought into market through the opening of the several land offices in the territory, is reported by Gen. Lessig, the Surveyor-General of Colorado, to be not less than "10,000,000 acres, all capable of cultivation," which large quantity, as the government surveys are extended, will be yearly increased.

The farms on Kiowa, Bijou, Cherry, Plum, Bear, and Boulder creeks, and on the Little Thompson and St. Vrain rivers, though not so large as the average of ranche farms farther south, are yet of considerable size, devoted chiefly to the raising of small grains, and stock. While much land on all these streams has been secured, the larger portion is still open for settlement, offering rare inducements to farmers and stock raisers. In Boulder County the smaller valleys of North and South Boulder, Coal, and Left-Hand creeks (forming with their tributaries a splendid region,) are more densely populated, but even here homesteads are to be taken, and cultivation at once commenced. Coal underlies *all* the extent of the country last named, with numerous banks (including the celebrated Marshall Bank,) opened and actively worked, the local markets and the railroads being supplied with their product.

Southern Colorado.—In a late annual report of the Agricultural Society of this territory, is the following:—"On the Huerfano River, in Southern Colorado, there are five farmers, who have annually sown and planted over 3,000 acres of land, and there is room in that section for the opening of *hundreds* of other as extensive farms, the success of which is guaranteed by the splendid results achieved by all who have gone forward in this boundless and inviting field of enterprise."

The Las Animas valley, 100 miles in length, situated in the county of the same name, is one of the finest valleys for farming known, and although well settled in places, is yet opened for very *extensive* occupation. Immense coal fields exist in this section, and crop out for miles near and along the Las Animas River. On the Arkansas, below the town of Pueblo, (population 1,500,) is a fine farming region, there being within a few miles more than a score of farms with from 500 to 1,500 acres each, all well cultivated and producing profitable crops.

Down the Fountain-qui-Bouille from the base of Pike's Peak, the soil is peculiarly adapted to agriculture and pasturage; and cultivated farms, some containing 500 to 1,000 acres, with large herds of cattle, are seen on every side to Pueblo. This fine section of country has, during the present year, had completed through it the Denver and Rio Grande Railway, which with a branch now building from Pueblo to Cañon City, is opening up to northern trade and commerce one of the most productive and available farming regions in Colorado. As evidence of the productiveness of the soil, Fremont, the county into which the branch line of the Rio Grande Railway is building, has been to a very considerable extent settled, and can boast of as fine and (by early spring next,) as profitable farms, as any other section of the country. On the Frazer Rancho, Beaver Creek, wheat yielded (irrigated once,) $41\frac{1}{2}$ bushels per acre, corn 105, oats 40, barley 38, and potatoes 240. W. R. Fowler, one of the first settlers and old "stand-bys" of the county, occupies a beautiful farm near Cañon City, comprising several hundred acres, every foot of which is susceptible of the highest cultivation. Wheat, corn, oats, &c., have long yielded here a very high average. On adjoining farms and elsewhere in the county, the crops raised have always returned well. Extensive cattle ranges among the "pinion bluffs" of this part of Colorado exist, and large numbers of very fine beeves are annually supplied to the eastern market.

Mountain Farming.—As evidence of the success of farm cultivation in the mountains, the following is submitted.

The owner of the Ditch Farm, situated at the head waters of the Platte, sowed last year, oats from April 12th to 14th, and harvested August 1st, crop yielding 30 bushels to the acre. There was no irrigation. On the same farm, potatoes planted from May 16th to 24th, was dug in September, averaging 87 bushels per acre.

Mayol's Ranch, situated in the Upper Arkansas valley, west of the South Park, and over 7,000 feet above tide level, was sowed partly with winter wheat in September, which was harvested the middle of same month the following year, and partly to barley 16th May, the crop being gathered early in August, yield of the first 25, and of the last 30 bushels to the acre. Oats the same year (1871,) was sown May 1st, and harvested September 1st, averaging 35 bushels per acre; while $4\frac{1}{2}$ acres potatoes planted May 20th, was dug in October, producing 195 bushels. Some rye (more as an experiment,) was sown the latter part of July, which harvested in October 20 bushels to the acre. These last two crops were irrigated three times.

Cost of irrigating 89 acres \$81. 2 acres of peas yielded 55 bushels. The same ranche has on it 100 cows, which raised this season 80 calves, also 220 head of other cattle, 30 horses, and 45 hogs.

In the South Park quite extensive gardening, and to a limited extent farming, have been attempted, resulting satisfactorily. Demonstrating that here, as elsewhere in Colorado, grain and vegetables can be raised *without irrigation* at an altitude of 8,000 feet, the rains produced by the evaporation of the snow, affording sufficient moisture. Judge Castillo informed the author when on a visit to this section that he had raised turnips weighing 10 lbs. each, onions $1\frac{1}{2}$ lbs., beets 4 to 6 lbs., and other vegetables in proportion.

The mountain ranche of Mr. Ira Hall, in Boulder County, presents a fine instance of what the climate of Colorado must be, from the fact, that although its situation is considerably over 7,000 feet above sea level, tomatoes, cucumbers, and *melons*, have been successfully grown, and these luxuries, particularly the latter, enjoyed at an altitude, higher than had been thought possible, from home raising.

At Georgetown (population nearly 2,000,) *the altitude of which is 8,452 feet above sea level*, the author has seen some very fine gardens planted out, where all the various vegetables, potatoes, turnips, beets, carrots, peas, beans, &c., have been successfully raised, and would state that *his* winter's supply of these esculents for himself and family (as he lives in this place), was entirely laid in last year from what grew within a half mile of his home.

Over the range.—Hon. Stephen Decatur, (an authority before cited,) writing from Summit County, says of that region—"The climate of the Green and White River vallies is mild, with pasturage abundant and nutritious, and the land admirably adapted to fruit culture. The streams are well stocked with trout, the country covered with a great variety of game, and the forests filled with birds; while the agricultural advantages possessed, is unrivalled. Stock can subsist the whole year without the trouble of cutting and curing hay. The Yampah, an esculent of which bears and *other game* are very fond, grows luxuriantly, furnishing a useful hint to all who may yet desire to engage in *sugar* beet culture. This section of country is the last and *best* portion of the United States to explore and settle up."

Markets.—In reference to marketing the product of the farm, the *Black Hawk Journal* (mountain paper,) says,—
"There is one thing Colorado can offer to the farmer that

no other section can do so well, and that is, *a ready market for his products almost at his own door, and at highly remunerative prices.* Large crops are of no avail to the farmer, unless he can sell them at fair prices; and in all countries, in which there are no large classes of consumers, the farmer is ever obliged to seek a foreign market, and in effect pay a heavy tariff for freight. Therefore, regardless of all other considerations, to a great extent at least, that country is the best for the farmer in which there is, and ever must be, a large class of consumers. COLORADO *presents just that condition*, as her mining interests promise to employ, as now, large numbers of persons who will consume the products of the farm."

The *Out West* (weekly paper,) published at Colorado Springs, adds its testimony to the above by stating, "The valley farming lands of our colony are unsurpassed in richness, producing abundant crops of all the cereals and vegetables, for which we have a large and an increasing home market, all that can be raised being consumed by *invalids* at the springs, *tourists* visiting the locality, the *miners* of the South Park, and by the *lumber interest* (embracing 10 saw mills,) of the vicinity—the prices at which our main staples are sold, averages, for wheat, \$1.50 per bushel, oats \$1, and potatoes \$1.20.

The *Denver News* (daily and weekly paper,) assert that "The great want of the territory to-day is farmers; not only those who grow grain on an extensive scale, but those who devote most of their time and attention to the raising of vegetables and poultry, and the making of butter. *For all these articles the demand is greater than the supply.* It is not that we cannot produce these articles, but that the farmers *are not here*, or sufficiently numerous, who will turn their attention to these matters. *No country* in the world can rival Colorado in its productions. *Fortunes are to be made here by those known as "dairy farmers."* We ask the attention of farmers and emigrants everywhere to this fact."

From the above, it must be apparent that Colorado offers an unequalled market for all of her products, whether of the farm or dairy, (and the author would also add, for all of her home manufactures,) and promises an amount of profit to any one, who with more or less capital at command and some slight experience can engage in the raising of cattle and sheep, that is really astonishing, considering that each beeve, costing on an average only \$5 to raise from a calf to three years old, will sell in the herd for $4\frac{3}{4}$ to $5\frac{1}{2}$ cents per lb., *live weight.*

CLIMATE.

The climate of Colorado has been, and doubtless always will be, considered one of its chief distinguishing and most pleasing characteristics. The atmospheric conditions of the whole country, is that of salubrity and brilliancy, and without possessing any prolonged vernal or autumnal seasons, there are no such severe sudden changes, (at least they are not experienced to the same degree,) as farther east; and no such extremes of heat and cold, as burns and parches in more southern, or chills in more northern latitudes. Throughout the year the sun retains a vitalizing yet mild heat, possessing no prostrating or suffocating power; while summer and winter, with the high average altitude and consequent general dryness and light air, temperate days and cool nights are always assured. A number of writers have incidentally expressed themselves (all favourably,) on the climate of Colorado. Naturally, where so many agree, there must be some truth. I quote the following—

Gov. Wm. Gilpin, in his Lecture on the "Parks of Colorado," says,—“The atmosphere and climate are essentially salubrious, brilliant, and tonic. There is little use for the practice of professional pharmacy. Chronic health and longevity characterize animal life. The envelope of cloud compelling peaks, the seclusion from the ocean, the rarity of the air inhaled, and the absence of humidity disinfect the earth, the water, and the atmosphere of exhalations and miasmas. Health, sound and uninterrupted, stimulate and sustain a high tone of mental and physical energy.”

Ned E. Farrell, in his "Rocky Mountain Gem," wrote,—“The mountain conformation is such as to shelter the whole extent of country from the prevailing north-west winds which come laden with the vapours of the Pacific Ocean. Thus nowhere are there so many bright days in the year, while the temperature is warmer in winter and cooler in summer than in the same latitude east.”

The Denver Board of Trade, in one of their pamphlet reports, makes this statement,—“The climate of Colorado is peculiar. Owing to its altitude, remoteness from any large bodies of water, and proximity to the great mountain ranges, the fall of moisture is small and almost wholly confined to the winter and spring months.” Again,—“The climate is dry, mild, and healthy. Little snow falls in the valleys, and up to the present date (March 1st) house flies have buzzed during every month of the past winter.”

The author of "Handbook of Colorado," expresses himself thus,—“The most striking peculiarities of climate are exceeding dryness, almost perpetual sunshine, total absence of miasmatic vapours and sultry days or nights, tonic exhilarating air of wonderful transparency. There are no extremes. The thermometer seldom goes above 80° in summer, or below 0° in winter. The average temperature is from 45° to 50°. Clouds, damp days and dewy nights are almost unknown.”

Professor Amasa McCoy, in a "Conversational Lecture" on Colorado, embodying his experiences of a full season's tour in this territory, and delivered by him before a select Chicago audience, remarked in reference to climate,—“When the locating committee of the Chicago-Colorado colony left Chicago in January (1870) last, to select lands for the colony in Colorado, the streets of Chicago were so blocked up with snow and ice, as to be impassable by the city railways. When they reached Denver the farmers were ploughing.”

An anonymous writer, visiting Colorado, wrote to his home paper,—“While the people of the east are enjoying their sleigh rides, we are luxuriating under the genial rays of a warm and unclouded sun, with snow only on the higher peaks of the mountainous ranges. The climate here is really unsurpassed. No swamps or marshes; air dry and bracing; and the average winter less than three months.”

But enough has been cited to show what has been thought and written of the climate of Colorado, and in closing, the author would say that,—Probably no people feel more attached to their climate and country, than do those who have chosen and made Colorado their home. Coming from any land—from the extreme far north, and far south; from France, Spain, and Italy, from England, from the Swedish, Russian and Prussian Baltic provinces, and even from the islands of the sea—there is no appreciation stronger and more certain, and no testimony so universal of the pleasure and intense delight experienced by the larger portion of residents, than what is induced and called forth on account of climate and the extreme balmy nature and velvety softness of the atmosphere. In winter there are always a few cold days, but in consequence of the rarity and dryness of the air, the cold is not painfully felt, while the general average weather is temperate, dry under foot, and sunshine overhead. In summer too, there are always some very warm days, but the rapid evaporation constantly going on from the surface of the skin, makes the heat bearable, and by no means at any time really oppressive, while the nights are so generally cool, as to invite and induce a deep, sweet, and refreshing slumber.

THE ROCKY MOUNTAINS.

To the tourist as well as to the scientific traveller the Rocky Mountains of America in their vastness, altitude, structure, variety of scenery, game, &c., are gradually, as they become more known, increasing in the charm they possess for the first, and the interest they create among the latter for their closer study. Since having been made accessible by railroads, the enjoyment of being rapidly and in the most luxurious manner transported to their base, without the old wearying effort of a week to four weeks travel across the great plains, is most delightful; and as the present means of inter-communication, inaugurated and rapidly being pushed forward, is developed, the desire among all classes to visit their recesses (both pleasure, scenery, and the discovery as it were of a new continent being promised,) will increase and strengthen. Attractive as have been the Scotch Highlands, Lakes of Killarney, North Wales, Westmoreland, and the Swiss Alps, with other home and foreign resorts of pleasure, attention will soon be divided between these places and the more varied attractions and greater extent of the Rocky Mountains, while the latter, with the difficulties of approach from this country each year lessening, must witness an increasing number of visitors—particularly as like a new leaf turned in a work of merit, in whose unfolding the most intense interest centre, this vast region presents to science a new and most extensive field for research and study, offering to the geologist the opportunity of increasing his store of knowledge, and possibly the means of perfecting his chart of the earth's crust; to the mineralogist the assurance that a vast and varied mineral wealth (unsurpassed in any country) awaits exploration and examination; to the botanist the certainty that the number of his classified plants can be largely increased, and throughout all science, to each representative of a department, the evidence that something may be learned and generalization made more perfect.

But passing to a consideration of what a few of the particular attractions, likely to interest the visitor to Colorado are, I present the following brief remarks.

Mountains.—The Colorado mountains, those that more particularly attract attention on account of their vast size and altitude, are,—Mount Lincoln, 16,300 feet high, situated like an immense corner stone at the junction of the three great counties of Summit, Park, and Lake, 110 miles south-west from Denver, *via* Fairplay and Montgomery; Torrey's and

Gray's Peak (twin sisters,) 14,526 and 14,466 feet, situated side by side in the main range, 65 miles west from Denver, *via* Golden, Idaho, and Georgetown, by the Colorado Central Railroad; Long's Peak, 14,250 feet, situated also in the Main Range where corners Boulder and Larimer Counties with Summit, 70 miles north-west from Denver, *via* Erie and Burlington, or Valmont and Ward, by the Boulder Valley Railway; and Pike's Peak, (after which, in the early day, the whole surrounding country was called,) 14,216 feet, situated in El Paso County on the outer east rim of the mountains, 80 miles south from Denver, *via* Littleton, Douglas and Colorado Springs, by the Rio Grande Railway. There are other high elevations of land in Colorado, such as Parry's Peak, 13,133 feet; Mount Flora, 12,878 feet; Mount Georgia, McOllough and Fletcher Mountains; St. James' Peak, (near Central City,) 13,000 feet; Old Baldy, or Silver Heels, in Park County; Sugar Loaf, between the North Boulder and Four Mile Creeks, in Boulder County; Camels Back and Chiann Mountains, overshadowing Glen Eyrie and the Garden of the Gods, with numerous others scattered in different parts of the territory, all worthy of a visit, but of which (not having such lofty "out looks," and their line of vision—although always grand—being less extensive,) I will make no special mention.

Of the extent of view to be enjoyed from the highest of the mountain peaks of Colorado, I will quote from what Hon. Wilber F. Stone wrote of Mount Lincoln.* "Few," he says, "ever die having beheld so magnificent a prospect as is seen from this summit. Colorado is spread out at your feet. The South Park—60 miles long and 30 wide—with its undulating hills, green meadows, and a thousand glittering lakes and brooks dwindles to a pleasure garden. You look over Long's Peak, north, almost into Dakota; you look over the plains of Utah to the west, stretching towards the golden shores of the Pacific; you look over the Spanish peaks, south, into New Mexico; and turning to the east, your vision wanders over Pike's Peak, where the great plains seem to rise up like an emerald ocean."

Deep cañons and gorges, rugged cliffs and waterfalls cluster around the sides of this immense mountain. Down upon all these, far, far below his feet, the author looked, when 11 years ago from this highest "out look" in Colorado, he drank in with all its magnificent detail, this most sublime of scenes. Being so elevated the field of vision is grand and so extensive, that

* The author, in September, 1863, had the honor at a public meeting of the citizens of Montgomery, of suggesting and naming this, the supposed highest peak of the Rocky Mountains.

although the circle of view is not less than 900 miles, it can embrace all the sublime realities of the *tout ensemble*. Who can witness this magnificent scene and describe it, and who not seeing it can conceive it? *

Passes.—The openings in the main range, by which the mountains are crossed from their Atlantic to their Pacific slope, are known as the Cheyenne Pass, 10,100 feet high, situated in Larimer County; Boulder Pass 11,900 feet, in Boulder County, Berthoud and Argentine Passes 11,349 and 12,200 feet, in Clear Creek County; Georgia, Hamilton, and Ute Passes (heights unknown) in Park County; and the Arkansas Pass 10,600 feet, in Lake County. The other passes of note are the Mosquito Pass, situated in a spur of Mount Lincoln between Fairplay and California Gulch; Poncho and Sangre-de-Cristo Passes, opening south and south-west into the San Luis Park and the valley of the upper Rio-del-Norte; and the Ratoon Pass, the most southerly in Colorado, across which the principal freight and travel from the north enter New Mexico. In this connection I will quote from Mr. Bowles, author of "OUR NEW WEST," who, visiting the Berthoud Pass in 1870, thus wrote:—"After three or four hours' hard riding from the upper Clear Creek, we suddenly came out of the trees into an open space of hardy green, bordered by snow, and behold, we were at the top of Berthoud Pass, a gap or sag in the mountains. The waters of the Atlantic and Pacific started from our feet; the winds from two oceans met here in each other's embrace; above us the mountain peaks went up sharp with snow and rock, shutting in our view; but below and beyond lay the Middle Park, a varied picture of plain and hill, with snowy peaks beyond and around."†

The scenery that everywhere meets and surround the traveller in crossing the main, or *any* of the numerous ranges or spurs of the Rocky Mountains, is ever picturesque, unstinted, rugged and grand—magnificence being always disclosed, profusion beheld, and a vast vista enjoyed; *first*, in lofty mountains

* Professor McCoy, who I have quoted from once before, thus discourses (in one of his inimitable lectures,) on Colorado,—“Mighty and interminable plains, which look like a vast ocean asleep; high-towering and innumerable mountains, where from one stupendous summit we count in the same sweep of vision some seventy others, and which appear as another ocean of rock, where every peak and cliff is a wave, and which is still a sea without motion—these and a thousand and one surprises and sensations flash upon the spirits, as if from a new heaven and a new earth.”

† Mr. Bowles advises all pleasure seekers to Colorado to visit this point, and speaking from experience says,—“It is a feasible excursion for any one who can sit in the saddle, being easily made—going and returning from Empire, Georgetown, or Idaho, in a day.”

towering thousands of feet above the pass, along the base of whose immense bare sides the trail or path winds; *second*, in the reality of an ever present and rich variety; and *third*, from crowding the traveller on his immediate right and left, the scene suddenly opens out, expanding indefinitely like the letter V, both before and behind.

Parks.—The parks of Colorado are numerous, ranging from 5 to 70 and 100 miles in extent. The principal of these are the North, Middle, and South Parks, averaging 8,000 feet above sea level, and the San Luis Park, 6,400 feet. The *first* embracing all the head waters of the North Platte, has been the least visited and hence is the least known of any of these upland levels, size 60 by 40 miles. The *second* situated west of the main range in Summit County has been explored, and although possessing no regular settlements, is annually visited by large numbers of tourists and others, size 70 by 55 miles. The *third* included in Park County, is well favoured for approach, and on account of its unquestioned mining interests, has attracted considerable attention and population, size 50 by 30 miles; and lastly, the *fourth*, composing entirely in itself Saguache, and parts of Conejos and Costilla Counties, is the largest and most southern of the parks named, and from perhaps possessing this last advantage, was the first to receive attention and settlement, which it did from New Mexico, size (the portion included in Colorado) 100 by 90 miles.

In the brief mention thus made of the great parks, although no adequate idea of their peculiar physical features and system can be formed, yet something of their importance, and (bisecting the territory from north to south as they do) something of their meteorological influence and economy may be conceived, but as my intention has not been detail, and I only wished to briefly give an outline of their situation and size, I close merely remarking, that the scenery of *all* the parks, whether of those mentioned or unmentioned, is everywhere sublime, and as varied and changing as the infinite forms of a kaleidoscope, and that at whatever season and by whoever visited, the mountains surrounding and edging them in, first swelling from their level or slightly undulating surfaces into the skirting foot hills with their thousand gulches and streams, and then into the flanking walls of their sharp edges and snowy summits, are always sure to intensely interest and excite, and the traveller casually visiting them once, is seldom satisfied, until returning again, he not simply admires but devotes himself to their wonderful study.

Lakes.—Among much that thoroughly interest the visitor to Colorado, not the least attractive are the lakes, everywhere nestling in her mountains and glens. Surrounded as such always are with the wildest scenery—either immediate, in the most lofty seclusion, or distant, with the snowy peaks of the *main* range for their background—there is presented to the wanderer as fancy may direct his steps, not only every form and conception of beauty, but from their quiet and intruded solitudes, the most imposing and sublime of scenes.

Among the lakes most frequented, both by tourists and the home resident, are,—the Red Rock Lake, situated in Ward District, Boulder County; the Chicago Lakes and Green Lake, in Clear Creek County, the one accessible from Idaho, up Chicago Creek, 12 miles, and the other from Georgetown, by horseback or vehicle, winding the first bench of Burrill Mountain, 3 miles; and the Twin Lakes, situated in the Upper Arkansas valley, Lake County. From the first named is obtained one of the finest views of the great Sierra Madre Mountains to be had in Colorado, the most prominent object amid which from this point of view, is St. James' Peak, towering high towards the clouds; from the second, nestling high amid the great bare mountains, is beheld a profusion of most wild scenery. Before the visitor, and almost closing on him right and left, are immense snow banks, feeding with their constant drippings the ice cold waters of these reservoirs, while deep gorges and vast cañon depths send forth their hundred rivulets, contributing each their quota of supply. It was at these lakes that Beirstadt drank in the inspiration which enabled him to transfer to canvass the scene embodied in his famous picture, "Storm in the Rocky Mountains," the conception of which will be recognised as truthful, by all who may have seen this master painting, and in every particular detail acknowledged a faithful copy of the original.

But enough. Green and the Twin Lakes, equally with those that have been mentioned; also Silver Lake at the head of the Blue in Summit County; the Albert and Victoria Lakes,* heading the sources of the Platte in Montgomery District, Park County, and Grand Lake on the middle fork of Grand River, with others everywhere scattered throughout the mountains, are all more or less picturesque and attractive, and the author hopes as worthy of a visit by tourist as inference or description would lead to suppose they are.

* Named by the author in 1861.

Springs.—The mineral springs of Colorado are varied and numerous, and their medicinal qualities and value well attested. Repeated analysis have determined their composition and pathological effects, both medical men and invalids testifying by their cures and restored health, what Colorado may fairly claim in respect of her possession of them. While evidence the most favourable has thus accumulated, it is pleasing to note that an increasing desire is being manifested among the afflicted to visit the several *spas* of the territory for their health, and the benefit that their waters and baths afford.*

Those springs most noted are the justly celebrated group situated at the foot of Pike's Peak, now utilized by the Colorado Springs Company, and the equally famous springs of Idaho; the first comprising *four* springs, the "Navajoe," "Galen," (sometimes called the Doctor) "Iron Ute," and the "Boiling Spring"; and the last, *three*, the two Montague Soda Springs, and the Doherty Sulphur Spring. The other known springs of this territory are some lately discovered on James and Four Mile Creeks, in Boulder County; the Burdsall Soda Lake Springs in Jefferson County; the celebrated Soda Spring at Cañon City, Fremont County; the well-known Salt Springs in Park County, from which a very pure salt is at this present manufactured, and the Middle Park Hot Springs (Sulphur) in Summit County.

The following is the analysis of the "Galen" or Doctor Spring, made by Professor Thomas M. Drown, as compared with the Krahuchen Spring at Ems, and the well-known Seltzer Spring in Nassau, Germany, the two most celebrated springs in Europe.

	Krahuchen Spring.	Seltzer Spring.	Galen Spring.
Chloride of Sodium	27.25	51.68	36.69
Chloride of Potassium		2.33	10.01
Bi-carbonate of Soda	57.03	29.29	24.01
Sulphate of Soda	0.56	0.76	4.78
Bi-carbonate of Lime	8.66	8.00	15.62
Bi-carbonate of Magnesia ...	5.83	7.65	8.89
Bi-carbonate of Iron	0.67	0.29	†

* These Baths are situated at Idaho in Clear Creek County, and in evidence of their appreciation and the excellence of their management, over 9,500 visitors patronized them during the season last year. The Baths are designated as the "Ocean" and "Mammoth." Proprietor, H. Montague.

† The accommodations for invalids and others visiting the "Galen" and adjoining springs of this group, consist of three well provided hotels, a number of private boarding houses, and *ample* livery (all of the best) for hire—the latter enabling all who desire to visit the very beautiful and romantic scenery of the neighbourhood, to do so with ease. The particular localities that may be visited at the

The analysis of contents of the "Mammoth" Soda Spring at Idaho, as made by Dr. J. G. Pohle, of New York, show the following:—

	Proportions to one gallon.
Carbonate of Soda	30.80
Carbonate of Lime	9.52
Carbonate of Magnesia	2.88
Carbonate of Iron	4.12
Sulphate of Soda	29.36
Sulphate of Magnesia	18.72
Sulphate of Lime	3.44
Chloride of Sodium	4.16
Chlorides of Calcium and Magnesium of each ...	a trace.
Silicate of Soda	4.08
	107.08*

Speaking of Colorado as a **SANITARIUM**, the "*Out West*," one of the most truthful and carefully edited papers of this territory, says:—"Malarial diseases in all its forms, with us are entirely unknown, while cases of pneumonia and diarrhoea (both acute and chronic) have been very rare. Asthma is immediately relieved and almost invariably cured by a residence more or less long in the country, and the probability of recovery from consumption in its early stages by a residence in Colorado as against Florida and Cuba, is at least ten to one. No other place in the world offers the consumptive as hopeful a prospect. All diseases of debility are greatly relieved and benefitted by the general tonic effects of the climate."

Hunting and Fishing.—Offering an attraction to large numbers of tourists, *game* everywhere abounds in Colorado—on the plains, antelope, deer, and buffalo; in the foothills and parks, deer, bear, and elk; and at timber line and above, mountain

"springs" are, the Garden of the Gods, with its "Beautiful Gate" and "Vista View," its "Seal and Nun," and "Elephant, Dolphin, and Eagle;" Glen Eyrie, with its "Harbour" and "Retreat;" Monument Park, with its "Enchanted Ground" and "City of the Dead;" Williams' Cañon, with its "Gap," "Speaking Trumpet," "Croton," and "Casket;" Ingleman Cañon, with its "Gog and Magog," and "Hide and Seek;" Cheyenne Cañon, with its "Forest Garden," its "St. Peter's House," and "Pillars of Hercules;" and lastly the ascent of Pike's Peak, with its excitement and difficulties, and as a reward to the successful climber, its vast and unsurpassed sweep of view.

* For the accommodation of tourists and others visiting both the springs and parks at Idaho there are two most excellent hotels and several well kept private boarding houses. Of the former, the best and most patronized, is the justly celebrated *Banana House*. There are also two very fine billiard halls, and an extensive *livery establishment*; this last furnishing both saddle horses and carriages to any desirous of visiting the several localities of interest in the neighbourhood, particularly the Chicago Lakes mentioned on page 75.

sheep. The fishing also is excellent, the streams and lakes being well filled, particularly with "speckled trout," a fish whose delicacy of flavour has no superior.

Among the localities supposed to offer the best facilities for hunting, are the tributary heads of the Republican and Arkansas Rivers, for buffalo; the south side of Cherry Creek Divide, for antelope;* the Pinion Bluffs, between Colorado and Cañon Cities, neighbourhood of Turkey Creek, and the tributary gulches and creeks of the Snake and Blue Rivers, for bear; Current Creek, the South Park, and Elk Creek, for elk; the timber line of McOllough and neighbouring mountains, for mountain sheep; and Estes and the score of smaller parks laying close up towards Long's Peak, for deer. But it may fairly be taken for granted, that while certain places have been more visited than others, and hence have been given the preference by the hunter, there is *no* part of Colorado but has its game, with hundreds of places that, as favourite resorts for deer, elk, and bear, are unsurpassed by any locality above named.†

In regard to smaller game, the *Central City Register* (a good authority) says,—“Mr. Yates, who has just come over from the Middle Park, reports having trapped last winter, 17 beaver, 1 otter, 14 martins, 7 minks, 37 foxes, 5 cross foxes, 4 wolverines, and 1 grey wolf. The park,” he further reports, “is full of elk, but deer are few.”

Such game as wild turkeys, grouse, ducks, &c., are also abundant—particularly on the St. Charles Hardscrabble, and other tributary streams of the Arkansas River.‡

The favourite resorts for fishing are, the “Three Boulders,” the Platte River above its cañon, and the Twin, Green, Grand, and Chicago Lakes—the denizens of the latter of these reservoirs being frequently seen swimming in the clear depths of their home. On the Middle Boulder, and the first named of the lakes, trouting is always good, of which circumstance, both tourist and residents from all parts of the territory annually take advantage.

* The author once travelling in company with an Ox Train (Solomon & Doyle's) counted one day in a distance of 22 miles, from Squirrel Creek south to “Jim's Camp,” 73 herds of antelope, numbering from 6 to over 50 in each herd.

† Should the visitor to Colorado desire at any time to enjoy the luxury of any particular *game* or *fish*, without caring for the interest that the “hunt” possesses for some, such can always at any first class hotel or restaurant in Denver, be favoured with whatever, *during the season*, epicurean taste may decide to order—whether steak of buffalo, bear, or elk, or the choicest cutlet of deer or antelope.

‡ When a resident in Southern Colorado, the author has frequently seen on the Hardscrable, turkeys—singly, with broods, and in large flocks.

JOURNEY TO COLORADO.

For the convenience and information of all persons who may for the first time be contemplating a visit, or a removal to Colorado, and who having perused the present work—benefiting by its collected facts—are desirous of verifying the statements of extraordinary mineral value, agricultural resources, general progress, &c., &c., therein made; or who otherwise interested, are anxious to enjoy the “hunt,” the fishing, and the wild and sublime Alpine scenery to be met with there, I beg to offer the following suggestions as to the best route and means of reaching this country, believing such, by whoever attempts the journey—capitalists, financial agents, intending tourists, and emigrants—will be found preferable in every respect, and entirely satisfactory.

WHITE STAR LINE.—Securing passage by this *incomparable* ocean steam line, plying between Liverpool and New York, the traveller leaving England arrives in America in from 9 to 10 days,* when hiring a hackney carriage, he is taken to any

* The average length of the voyages by this line, during the first year of sailing, was—

	Days.	Hours.	Minutes.
Outward	10	1	45
Homeward	9	4	19

for the first three months of the present year—winter season

	Days.	Hours.	Minutes.
Outward	10	10	2
Homeward	9	2	50

and second three months—

	Days.	Hours.	Minutes.
Outward	9	3	18
Homeward	8	20	36

being respectively less than the average time of the *hitherto* celebrated “Cunard Line,” by—

	Days.	Hours.	Minutes.
Outward	1	14	12
“	—	15	8
Homeward	—	—	18
“	—	7	16

and less than the “Inman,”—

	Days.	Hours.	Minutes.
Outward	1	22	10
“	1	8	7
Homeward	—	19	27
“	—	23	34

The fastest *Outward* run of any Steamer of this Company, was that made by the *Adriatic*, viz:—7 days, 18 hours, 55 minutes; and the quickest *Homeward* run, 8 days, 3 hours, 18 minutes, made by the same ship. The *Baltic* also came home

hotel he may desire—to the “Taylor House,”* Jersey City, or to either the “Astor,” “St. Nicholas,” or “French’s,” in New York.

PENNSYLVANIA CENTRAL RAILROAD.—As trains on each of the great competing lines of railway leave New York for the west 3 to 4 times a-day, the traveller, should he wish, can continue his journey within the first hour or two of landing. Purchasing his ticket† by the great “PENNSYLVANIA CENTRAL,”‡ (the most *direct* west line from New York,) and its connections to Denver, *via* Chicago, Quincy, and Kansas City, the traveller, passing through the beautiful suburban State of New Jersey, the very picturesque and populous State of Pennsylvania, and the lovely farm States of Ohio and Indiana, reaches Chicago, where if he desire he can break his journey, giving himself the opportunity of a study into the cause of the wondrous growth and prospects of this most attractive and wealthy (*despite the late set back of the great fire,*) of all western cities.

Chicago, Burlington, and Quincy Railroad.—Leaving Chicago by this smooth and ably conducted line, the traveller rapidly traverses the most fertile prairies and best farm region of Illinois, to Quincy and the east bank of the Mississippi, which latter he crosses by the magnificent bridge spanning the “Father of Waters” at this point and terminus of the company’s road.

in 8 days, 3 hours and 58 minutes. As compared with the “Guion” and “National” Steam Lines, the difference of time in favour of the WHITE STAR COMPANY is much greater, thus insuring to all patronizing *this* LINE the shortest possible ocean voyage, and the enjoyment of *unequalled* passenger accommodation.

All time above given is reckoned from Queenstown to New York, and *vice versa*, adding Outward and subtracting Homeward 4 hours, 22 minutes, for difference of time between these places.

* This is a convenient and first-class hotel, for those who wish immediately to continue their journey westward, being opposite the station of the PENNSYLVANIA CENTRAL RAILROAD COMPANY, and on the *Pier* side of the River, where the WHITE STAR COMPANY’S Steamers arrive and depart.

† This he can do, *good for one month*, thus enabling him to break his journey at any point he may desire, which is most convenient, particularly when travelling for pleasure only, he wishes to take his time, make his journey *easy*, and note everything of interest as he passes along.

‡ The attractions of this road are numerous, and the interest these centre at different points along its route, is greater than what is known of any other line running westward from New York. Among the objects that attract are mountains and valleys, dashing torrents, rivers and cascades, wild forest views, magnificent iron bridges, deep cuts and tunnels, cities, villages, and stations; all presenting a panorama of beauty, which for one line of railway to possess, as the PENNSYLVANIA CENTRAL does, is extraordinary.

*Hannibal and St. Joseph Railroad:**—Continuing his journey the traveller, *without a change of train*, is comfortably, speedily, and safely conveyed over the Main Trunk and “Cameron” branch of this superb and shortest route, to Kansas City.

Kansas Pacific Railway.—Having crossed the Missouri River by another of those splendid railroad bridges† spanning the great streams of the West, the traveller leaving Kansas City soon passes in rapid succession the several settlements of Eastern Kansas, all showing a wonderful growth and improvement for their age, and crossing the outer rim of the great plains sensibly feels himself (although luxuriously seated in his Silver Palace car, with comfort and company around him,) *alone*. But overcoming his feelings, which are but temporary, he imbibes rapidly a new sensation, and enjoys rather than otherwise his changed situation—the bracing freshness of the air tending to exhilarate, while an occasional wolf, a group of deer, or a herd of buffalo, seen from his car window, excite a fresh and a freer flow of feeling. Thus it continues to Denver, the sight of the vast mountains‡ from this terminus|| of his *great* excursion, adding to his gratification and pleasure.

Here the author’s duty with this description of the journey from England to Colorado nearly ends, and while recommending the traveller to remain over in this place for a short time—choosing “Sargent’s” excellent hotel at which to recruit—he begs to say that he will always be found willing to render the stranger to the territory service when he can, and any one visiting or addressing him at Georgetown for information or favours, will receive attention to the extent that other duties and time will permit.

* This well managed line passes through the rich farm region and peculiar country scenery of “North” Missouri, and is the *only* Western Railway running *Six* Express Trains daily, connecting at Hannibal, its initial point, with the “Chicago, Burlington, and Quincy Railroad,” and at Kansas City, its terminus, with the *great* “Kansas Pacific Railway.”

† The beauty of these structures (particularly the two mentioned) are peculiar, and such as under the circumstance of their surroundings, call for admiration, at least they have from the author, who, as often as occasion has led him to cross either, has invariably been attracted to the end platform of his train, to admire their faithful proportions, strength, and beauty.

‡ For a description, “*First View of the Mountains*,” the author refers all interested, to his Pamphlet, “COLORADO, ITS HISTORY, GEOGRAPHY AND MINING.”

|| So called, because the traveller’s journey thus far has been continuous, and it being necessary that any future movement, north, south, or west, should be made from Denver as a centre, and as desire or circumstances may determine.

RAILROADS.

There are five railroads in operation in Colorado, all connecting with Denver,* viz.—

Kansas Pacific Railway.—Initial Point, Kansas City; terminus Denver; length 639 miles, of which 191 miles is within the territory. Was opened for through travel, June 24th, 1870.

Denver Pacific Railway.—Initial Point, Denver; terminus Cheyenne; length 106 miles, of which 98 miles is within the territory. Was opened for through travel, August 15th, 1870.

Colorado Central Railroad.—Initial point, Golden; *present* terminus east, Denver, and west "Big Hill;" length 30 miles, all within the territory. Was opened for travel to Golden City (17 miles), September 30th, 1870, and to the North Fork of Clear Creek (13 additional miles), *this* September 1st. Is being rapidly extended to Black Hawk, Central, and Nevada Cities, and is surveyed for a branch (or rather for what will be the main trunk) to Georgetown, and west through the range by a tunnel 2½ miles long, to Utah, Nevada and California.

Boulder Valley Railway.—Initial point, Denver; terminus Boulder City; length 47 miles, all within the territory. Was completed to Erie, July 21st, 1871, and opened for through travel *this* last August 28th.

Denver and Rio Grande Railway.—Initial point, Denver; *present* terminus Pueblo, to which place it was opened June 21st, last. Length 114 miles, all within the territory. Is proposed to be immediately extended south to Santa Fe, 261 miles, *via* Trinidad, the Sangre-de-Cristo Pass (altitude 9,186 feet), and the valley of the Rio Grande. From Santa Fe, a still further extension is contemplated. viz.:—to the Capital of the Mexican Republic, continuing down the Rio Grande River, into Mexico, crossing at the border town of El Paso Del Norte,

* The population of this the principal commercial town of Colorado, taken in 1870 showed 4,700. In 18 months after, from a special census made by Matthews, Reser & Co., publishers of the *Real Estate Register*, the following facts were returned, viz.—

Population in December, 1871	...	...	...	10,832
Increase in 18 months	...	...	...	6,132
No. of Buildings erected in 1871	...	...	...	788
Value of same	...	...	...	\$2,301,375
Business in 1871	...	...	...	\$14,271,700
No. of Directory Names	...	...	...	4,500

THE ROCKY MOUNTAINS.

To the tourist as well as to the scientific traveller the Rocky Mountains of America in their vastness, altitude, structure, variety of scenery, game, &c., are gradually, as they become more known, increasing in the charm they possess for the first, and the interest they create among the latter for their closer study. Since having been made accessible by railroads, the enjoyment of being rapidly and in the most luxurious manner transported to their base, without the old wearying effort of a week to four weeks travel across the great plains, is most delightful; and as the present means of inter-communication, inaugurated and rapidly being pushed forward, is developed, the desire among all classes to visit their recesses (both pleasure, scenery, and the discovery as it were of a new continent being promised,) will increase and strengthen. Attractive as have been the Scotch Highlands, Lakes of Killarney, North Wales, Westmoreland, and the Swiss Alps, with other home and foreign resorts of pleasure, attention will soon be divided between these places and the more varied attractions and greater extent of the Rocky Mountains, while the latter, with the difficulties of approach from this country each year lessening, must witness an increasing number of visitors—particularly as like a new leaf turned in a work of merit, in whose unfolding the most intense interest centre, this vast region presents to science a new and most extensive field for research and study, offering to the geologist the opportunity of increasing his store of knowledge, and possibly the means of perfecting his chart of the earth's crust; to the mineralogist the assurance that a vast and varied mineral wealth (unsurpassed in any country) awaits exploration and examination; to the botanist the certainty that the number of his classified plants can be largely increased, and throughout all science, to each representative of a department, the evidence that something may be learned and generalization made more perfect.

But passing to a consideration of what a few of the particular attractions, likely to interest the visitor to Colorado are, I present the following brief remarks.

Mountains.—The Colorado mountains, those that more particularly attract attention on account of their vast size and altitude, are,—Mount Lincoln, 16,300 feet high, situated like an immense corner stone at the junction of the three great counties of Summit, Park, and Lake, 110 miles south-west from Denver, *via* Fairplay and Montgomery; Torrey's and

Gray's Peak (twin sisters,) 14,526 and 14,466 feet, situated side by side in the main range, 65 miles west from Denver, *via* Golden, Idaho, and Georgetown, by the Colorado Central Railroad; Long's Peak, 14,250 feet, situated also in the Main Range where corners Boulder and Larimer Counties with Summit, 70 miles north-west from Denver, *via* Erie and Burlington, or Valmont and Ward, by the Boulder Valley Railway; and Pike's Peak, (after which, in the early day, the whole surrounding country was called,) 14,216 feet, situated in El Paso County on the outer east rim of the mountains, 80 miles south from Denver, *via* Littleton, Douglas and Colorado Springs, by the Rio Grande Railway. There are other high elevations of land in Colorado, such as Parry's Peak, 13,133 feet; Mount Flora, 12,878 feet; Mount Georgia, McOllough and Fletcher Mountains; St. James' Peak, (near Central City,) 13,000 feet; Old Baldy, or Silver Heels, in Park County; Sugar Loaf, between the North Boulder and Four Mile Creeks, in Boulder County; Camels Back and Chiann Mountains, overshadowing Glen Eyrie and the Garden of the Gods, with numerous others scattered in different parts of the territory, all worthy of a visit, but of which (not having such lofty "out looks," and their line of vision—although always grand—being less extensive,) I will make no special mention.

Of the extent of view to be enjoyed from the highest of the mountain peaks of Colorado, I will quote from what Hon. Wilber F. Stone wrote of Mount Lincoln.* "Few," he says, "ever die having beheld so magnificent a prospect as is seen from this summit. Colorado is spread out at your feet. The South Park—60 miles long and 30 wide—with its undulating hills, green meadows, and a thousand glittering lakes and brooks dwindles to a pleasure garden. You look over Long's Peak, north, almost into Dakota; you look over the plains of Utah to the west, stretching towards the golden shores of the Pacific; you look over the Spanish peaks, south, into New Mexico; and turning to the east, your vision wanders over Pike's Peak, where the great plains seem to rise up like an emerald ocean."

Deep cañons and gorges, rugged cliffs and waterfalls cluster around the sides of this immense mountain. Down upon all these, far, far below his feet, the author looked, when 11 years ago from this highest "out look" in Colorado, he drank in with all its magnificent detail, this most sublime of scenes. Being so elevated the field of vision is grand and so extensive, that

* The author, in September, 1863, had the honor at a public meeting of the citizens of Montgomery, of suggesting and naming this, the supposed highest peak of the Rocky Mountains.

	Acres.
Sold for Cash	73,789
Secured with Agricultural College Scrip ...	27,778
do with Land Warrants	14,879
do under Homestead Act	74,579
Total	191,025

The office of the National Land Company, opened at Denver for the sale of the railway lands of the territory, sold from April 11th to close of the same year, 83,493 acres, which, with the transactions of the other government and private offices during 1870, aggregating 140,000 acres additional, would make the total of land sold during that year upwards of 414,000 acres. For 1871 the increase exceeded 50 per cent., and this year the author is informed they will be nearly double. From this statement, those for whom the information is intended, will readily see how rapidly Colorado must be settling up, and form some idea of the advantages possessed that are sufficient to induce the continual inflow of population now going on.

Free Schools.—The free public school system of Colorado, and its importance, is shown by the following facts, abstracted from the last Annual Report of the Superintendent of Public Instruction,—

No. of School Districts	160
No. of Schools	120
No. of Pupils	4,357
No. of School Houses	80
Value of School Houses	\$82,574
Total amount of School Fund, 1871 ...	81,274
do Expended during 1871	67,395
Total Surplus from Receipts for 1871 ...	13,879

In addition to the above, the following amounts for school purposes have been voted this year, viz.:—

By Golden City	\$20,000
Central	30,000
Evans	11,000
Denver	75,000
Pueblo	20,000

From the above, it will be seen that the educational facilities, offered freely to every inhabitant wherever settlements have been made, proves Colorado to be *the country* for the intending emigrant, and that in addition to the inducements already held out, another reason is presented why *heads of families* leaving the "old land" should choose this territory for founding a new home, ensured as there is to them not only a vigorous and thrifty, but an intelligent, population.

POPULATION (by Counties).—Arapahoe, 14,500; Bent, 1,500; Boulder, 3,800; Clear Creek, 4,500; Conejos, 3,000; Costilla, 2,700; Douglas, 2,100; El Paso, 3,000; Fremont, 2,000; Gilpin, 9,000; Greenwood, 1,000; Huerfano, 4,000; Jefferson, 3,500; Lake, 1,200; Larimer, 1,500; Las Animas, 6,500; Park, 1,300; Pueblo, 5,000; Saguache, 700; Summit, 700; and Weld, 3,500—Total 75,000.

Towns, Villages, and Mining Camps.—Black Hawk, population 2,000; Boulder, 1,500; Breckenridge, 350; Burlington, 600; California Gulch, 400; Canon City, 800; Cardinal, 200; Caribou, 600; Central, 3,000; Colorado City, 600; Colorado Springs, 650; Denver, 12,500; Empire, 300; Erie, 300; Evans, 700; Fairplay, 800; Georgetown, 2,200; Granite, 400; Golden, 2,200; Greeley, 2,000; Green City, 300; Idaho, 650; Longmont, 600; Nevada, 1,300; Pueblo, 2,000; Trinidad, 1,200; Valmont, 200.

Wages, &c.—Blacksmiths, \$3.50 to \$5 per day; Bookkeepers, \$75 to \$100 per month; Bricklayers, \$4 to \$5 per day; Carpenters, \$3.50 to \$4; Cattle Herders, \$30 to \$40 per month, and board; Common Laborers, \$2.25 to \$3 per day; Farm Hands, \$2 to \$2.50, or with board \$20 to \$25 per month; Masons, \$4 to \$5 per day; Mechanics, \$4 to \$5.50; Miners, (coal) \$1 per ton; Miners, (gulch) \$3 to \$3.50 per day, and with board \$2 to \$2.50; Mining (according to hardness of rock, &c., and charging Miners with their "cost")—Shafting, \$20 to \$40 per foot; Drifting, \$7 to \$18 per foot; Sinking Winzes, \$14 to \$22 per foot; Stoping, \$20 to \$40 (less \$2 to \$3 where stulls are not run) per fathom; Mine Hands, \$3 to \$3.50 and Bucket Fillers and Dumpers, \$3 per day; Trainers (tunnel), \$3 to \$3.50; Timberers, \$80 to \$100 per month; and Mine Captains, \$100 to \$150 per month; Seamstresses, \$1.50 to \$2 per day, and board; Shop Clerks, \$60 to \$75 per month; Teamsters, \$30 per month, and found; Tender to Masons, \$3 to \$3.50, and Waggon Makers, \$3 to \$4 per day; and Washerwomen, \$2 to \$2.50 per day and board, or \$1.50 to \$2 per dozen. All mechanics and labourers may depend upon finding immediate employment on reaching the territory; others, if willing to labor, can also find work until vacancies in their several callings occur.

Hints for all.—Those who can do well in Colorado are the producing classes—farmers, stock raisers, wool growers, dairy-men, miners, and labourers.—Servant girls, housekeepers, cooks, and laundresses, are all in good demand, and at remunerative wages.—Good school teachers can find ready employment, and be well paid.—Men without capital, if possessed of muscle and

a good strong determination to better their circumstances, readily rise and do well; while men with limited means can always *profitably* invest in making a home.—When leaving by any railway for Colorado, purchase a through *time* ticket, (in every instance at the office of the company, whose road you travel by, to prevent being defrauded,) checking all baggage through to destination.—Pay no attention to hotel runners and other similar gentry, for the majority of such are “*sharks*.”—Always ask a policeman or any respectable shopkeeper for information.—Stop invariably at good hotels; such as the “St. Nicholas,” “Astor,” and “French’s,” in New York; the “Taylor House,” in Jersey City; “Sherman,” “Tremont,” or “Metropolitan,” in Chicago; and the “Lindel” and “Sheridan,” in Kansas City.

Hotels.—The principal hotels of Colorado, where the visitor to the territory can stop and be insured comfortable beds and the luxury of a well supplied table, are, in—

BOULDER CITY.—The “Boulder” and “Colorado” Houses.
 BRECKENRIDGE.—“Silverthorn” and “Rankin” Houses.
 BURLINGTON.—“City Hotel” and “Burlington” House.
 CARIBOU.—“Caribou” House.
 CENTRAL CITY.—“Teller” House and “National” Hotel.
 COLORADO CITY.—“Colorado” and “Holmes” House.
 COLORADO SPRINGS.—“Colorado Springs” House.
 DENVER.—“Sargent’s” Hotel, and “Tremont” House.
 ERIE.—“Erie” Hotel.
 FAIRPLAY.—“Castello” and “Clinton” Houses.
 FALL RIVER.—“Fall River” House.
 GEORGETOWN.—“Barton,” “Girard,” and “Leggett” Houses.
 GOLDEN CITY.—“Golden” House.
 GRANITE.—“Drayton” House.
 GREELEY.—“Greeley” House.
 HAMILTON.—“Lilianthal” and “Dunbar” Houses.
 HUTCHINGSON.—“Junction Ranch” (South Park Road).
 IDAHO.—“Beebee” House.
 LONGMONT.—“St. Vrain” Hotel.
 MILL CITY.—“Mill City” House.
 PUEBLO.—“Chilcott” and “Pueblo” Houses.

Expenses of Journey.—The expense of reaching Colorado from England, is (for each adult emigrant,) steerage by the “White Star” line from Liverpool to New York (including provisions), £6 6s.; Railway (2nd class), from New York to Denver £10, and Sundries £2 12s., total 18 guineas. Children under one year old on the ocean voyage, and under five years old on the railroad, FREE; under 12 years of age, *half price*.

Expenses for the journey, roundly, 20 guineas; for Tourist 3rd class return (allowing one month to visit in the territory), 50 guineas; 2nd class return 75 guineas; and 1st class return 100 guineas.

Official.—Governor E. M. McCook, in a late message before the Colorado Legislature, said;—"Fruitful as has been the past, the future is still more full of promise. Our successes here have not been the result of fortune alone; for as we have grown in years, our prosperity has been assured through the development of that wealth which Providence has so liberally bestowed upon us. What we want now is to hold out the hand of welcome to the impoverished of all nations, and the disheartened of all lands, saying to them, come! Here is a region where the hardships and rigors of an inhospitable climate are unknown! Here a land unwearied by the burden of ill-constructed laws, or unjust taxation! Here a society untainted by prejudice, and uninfluenced by superstition! Here rest can be found and homes created among the mountains or in the valleys of our great territory. The honest efforts of manly industry are rewarded here; and here amid the mountains ribbed with silver, and rich with gold, the Goddess Fortune walks among men, distributing her favours with a lavish hand." And in his opening address before the Agricultural and Industrial Society of the territory, the Governor thus expressed himself:—"This annual exhibition of our society, is for us a *trial event*, for we have challenged the attention of the whole world to our mineral resources and productive capacity; and as I looked around me to-day, I was convinced that we had thoroughly vindicated the claims of Colorado to being richer in present wealth and future promise than any, or all the territories of the Union."

The Denver Board of Trade, in its Pamphlet descriptive of Colorado, says:—"Colorado has richer and more extensive mineral deposits than California, and grazing lands as valuable as those of Texas. She has the peculiar excellences of both these favoured States, with the advantage of *easier access and a nearer market*—in fact, she holds the choice of position among all the mineral States, by being principally on the eastern slope of the Rocky Mountains."

The Board of Immigration (formed by an Act of the last Legislature,) describing the advantages of Colorado in its late Official Pamphlet, says:—"Those who are restless in their old homes, and who seek to better their condition, will find greater advantages in Colorado than anywhere else in the West. Our mining resources offer inducements which no State east of the mountains can present, and for stockmen and agriculturists

Colorado makes a better exhibit than any other region. The climate possesses peculiar charms for those in failing health, and invalids can find here a sure panacea for nearly every human ill. The poor should come to Colorado, because here they can by industry and frugality better their condition. The rich should come here, because they can more advantageously invest their means than in any other new region. The young should come here to get an early start on the road to wealth, and the old should come to get a new lease of life, and to enjoy their declining years in a country unequalled for its natural beauty and loveliness. In short, it is the Mecca for all classes and conditions, and we confidently recommend it to the thoughtful examination of the public."

NEWSPAPERS AND MONTHLIES.

The Press of Colorado comprise the following daily, weekly, and monthly publications.

Place of Publication and Name.	Issued.	Editors and Proprietors.
Black Hawk <i>Herald</i> ...	Daily & Weekly	
Boulder <i>News</i>	Weekly	Henry N. Cort.
Cañon City <i>Times</i>	do.	
Caribou <i>Post</i>	do.	Collier & Hall.
Central <i>Herald</i>	Daily & Weekly	Frank Fossett.
Central <i>Register</i>	do. do.	Collier & Hall.
Colorado Springs <i>Out West</i>	Weekly	J. E. Liller.
Denver <i>Bulletin</i>	Daily	P. J. Reid.
Denver <i>Herald</i>	Weekly	O. J. Goldrick.
Denver <i>Monthly</i>	Monthly	J. H. Wilhelm.
Denver <i>News</i>	Daily & Weekly	W. N. Byers.
Denver <i>Real Estate Register</i>	Monthly	Matthews & Reser.
Denver <i>Times</i>	Daily	J. A. Blake.
Denver <i>Tribune</i>	Daily & Weekly	Den. Tri. Association.
Denver <i>Western Star</i>	Monthly	Fisher, Putnam & Bulen.
Evans <i>Journal</i>	Weekly	Todd & Hartman.
Georgetown <i>Miner</i>	Daily & Weekly	Alex. Cree.
Golden <i>Eagle</i>	Weekly	John Sarell.
Golden <i>Jarvis Record</i>	Monthly	Jarvis Hall.
Golden <i>Transcript</i>	Weekly	George West.
Greeley <i>Tribune</i>	do.	N. C. Meeker.
Longmont <i>Press</i>	do.	Elmer F. Beckwith.
Longmont <i>Sentinel</i>	do.	Hall & Low.
Pueblo <i>Advertiser</i>	Monthly	— Mc Bride.
Pueblo <i>Chieftain</i>	Weekly	Lambert & Co.
Pueblo <i>People</i>	do.	George A. Hinsdale.
Trinidad <i>Enterprise</i> ...	do.	Enterprise Co.

GRAND CAÑON OF CLEAR CREEK.

The *first* railroad penetrating *the mountains* of Colorado, opening up one of the finest objects of interest in the world, viz., the *Grand Canon of Clear Creek*, has just been completed to the "Big Hill," 13 miles above Golden. Adding a *new attraction* to the many already possessed, no visitor to the territory can fail in future to avail himself of the means afforded for contemplating the grand and sublime in nature, as presented by a ride over the *new road*, not simply to its present terminus, but soon in *open excursion cars* throughout its entire extent to Black Hawk, Central, and Nevada Cities.

The author as a fitting close to his pamphlet quotes from an article in the last (Sept. 4th) *Golden City Transcript*, wherein the writer thus exultingly expresses himself:—"The consummation of this grand work marks an era in the history of Colorado. The road is a triumph of engineering skill. Here is a railroad, built through a narrow gorge for thirteen miles by the side of a raging torrent, much of its bed blasted from the solid rock, following of necessity the tortuous windings of the stream. A ride over this road opens to the passenger at every turn the most grand and stupendous scenery in the world. On either hand for nearly the whole distance, the canon is shut in by precipitous mountains reaching an elevation of over a thousand feet, their rocky sides in many places even overhanging the trains as they are whirled through the weird gorge, while the river, first upon one side and then upon the other, dashes over the rocks with irresistible impetuosity, seeming maddened by the encroachment of man upon its chosen domain. The whole scene is indescribably grand, and can only be appreciated by being seen.*

In future, a ride through the Grand Cañon of Clear Creek will be one of the most attractive features of a visit to Colorado, and no Tourist will return to the States without having taken at least one ride. The Colorado Central Company, with its characteristic enterprise, has arranged for selling excursion tickets from Denver and Golden to the end of their track and return, and have provided *observation cars*, to be run with every train, for the benefit of those who take the trip for the especial purpose of viewing the scenery."

* Some beautiful Stereoscopic Views of this scenery may be seen at the B. & C. M. B., Bartholomew House, London.

COPPER AND LEAD IN COLORADO.*

SIR,

The Mines of Colorado are rich in gold and silver. Copper and lead are also known to exist, but it is generally supposed in only limited quantities. This supposition is fallacious. In order to successfully treat, by smelting, the rich ores of any country, sufficient copper ores must be used to form a copper regulus that will take up the precious metals; or sufficient galena ores to combine with the precious metals—the product being lead riches.

In order to lay before your readers some facts regarding the richness of Colorado ores in lead, I will mention that many of the galena mines, which are low grade in silver, are not being worked, owing to the want of a market for that class of ore, although they have received sufficient development to demonstrate their great worth and value, whenever extensive smelting-works are erected, and a market established. As an instance of what the ores contain in lead, I will state that 11½ American tons of ore from the Menlota Mine, at Georgetown, shipped to Liverpool, gave a return of 51 per cent. lead, and 66 ozs. silver to the ton. This ore was merely hand-picked, not machine dressed.

In the statement of the Colorado Terrible Lode Mining Company, Limited, for September, I find that 2½ tons of jigged minerals from their 3rd class ore gave a return at Liverpool, of 71 per cent. lead. It must be remembered that the 3rd class ore from which this mineral was obtained could not possibly, previous to jigging, have carried over 10 or 12 per cent. of lead. All the ore from this mine is hand-picked, the 1st class, or that containing the largest percentage of silver, is shipped to Liverpool—160 English tons giving an average of 31½ per cent. lead; the 2nd class sent to the amalgamating works for treatment, and the 3rd class dressed in a simple jig. The Cashier mine produces ore easily hand-picked to 45 per cent. lead, and 150 ozs. in silver. The Stevens 1st class ore is rich in lead, from 40 to 50 per cent., and 200 to 300 ozs. in silver. The Paymaster carries over 50 per cent. lead, but is comparatively low grade in silver, from 80 to 70 ozs. to the ton. The New Boston, Muscovite, Henry Ward Beecher, and a score of mammoth veins exist in Clear Creek County alone, that will yield immense quantities of ore, from 10 to 50 per cent. galena, and from 20 to 60 ozs. in silver to the ton, and this, too, without machine dressing, while in Gilpin County there are numerous others.

The numerous gold mines of Gilpin County and of Upper Union district, Clear Creek County, generally carry a large percentage of copper, sufficiently so to render them valuable as smelting ores. They are not copper ores, but gold and silver ores containing copper. The same imperfect mode of dressing the ores exists here as in the silver mines of Clear Creek County. About 5 per cent. of the ore yield of the mines is hand-picked from the total mass raised, and sold to the smelters, while the remainder, containing from 15 per cent. to 30 per cent. of equally as good mineral, is sent to the stamp mills for treatment. But by this imperfect mode of dressing sufficient data has been obtained regarding the amount of copper contained in the ore which can be readily used as a basis for those who contemplate the erection of smelting-works in that country: 20 English tons of ore from the Briggs Mine, in Gilpin County, shipped to Liverpool, gave a return of 9 ozs. 2½ dwts. of gold, 27 ozs. of silver, and 9 per cent. of copper to the ton. Many of the following results have been obtained in London from tests of ore from the following named veins, all in Gilpin County:—Bobtail, 37 per cent. of copper;

* This letter from the pen of A. W. Barnard (copied from a late number of the *London Mining Journal*), is so well written, and so truthful as to the statements made, that the author copies it with pleasure as a fitting close to his work, particularly as all that he has said of the Copper and Lead of Colorado is thus confirmed, and Mr. Barnard's very long connection with the press of that territory, as editor of the *COLORADO MINER*, published at Georgetown, commands for him consideration as an authority.

Lord Byron, 23 per cent. of copper; Rhoderick Dhu, 20 per cent. of copper; Pewabic, 23 per cent. of copper; Kansas, 5 to 9 per cent. of copper; Forks, 5 to 14 per cent. of copper; California, 6 to 13 per cent. of copper; Central, 7 to 15 per cent. of copper; Illinois, 12 to 29 per cent. of copper; Alps, 8 to 21 per cent. Mammoth, 6 to 20 per cent. of copper; Gregory, 5, 9, and 11 per cent. of copper; Gunnell, 6 to 10 per cent. of copper. When it is considered that these results are obtained by the expensive and imperfect mode of dressing (by hand) in use there, they are simply wonderful.

In Jefferson and Boulder Counties are a large number of valuable copper mines, already sufficiently developed to demonstrate their value. There are copper mines carrying some silver, from 5 to 30 ozs. to the ton. The Commercial lode gives 33 per cent. copper; Gregory, 37 per cent. copper; Malachite, 12 to 22 per cent. copper, and numerous others at least 10 to 20 per cent. copper. Valparaiso, 18 to 21 per cent. copper; Partridge, 17 to 24 per cent. copper. Fluor-spar also exists in considerable quantity in the vicinity of these mines.

The above facts are sufficient to convince the minds of all interested, that the mines of Colorado are not only rich in gold and silver, but also in copper and lead, and that a more economical process of dressing the ores is required. If such results can be obtained from the rough and loose manner of hand-dressing now existing there, where fully 30 per cent. of the mineral is left in the remaining ore, what would be the result if the dressing-floors in use in England could be brought into general use there? It is certainly safe to say that with proper appliances for dressing the galena ores of Clear Creek County, that county can alone produce at least 100 tons of smelting ore per day, averaging at least 50 per cent. of lead to the ton, while Gilpin County could do fully as well with both lead and copper.

A. W. BARNARD.

(Of Colorado), Nov. 28.

CONFIRMATION.

In further proof of all that has been stated in this work, the following extract is given from a letter of Professor C. S. RICHARDSON, Central City, Colorado:—

"We have here in our Central City District over 100 rich and productive Gold, Silver, and Lead Mines, which conjointly at this time can produce 1000 tons of Ore per day, valued at 50,000 dols., adding fifteen millions a year to the wealth of the country; this is exclusive of the great Silver-producing districts of Clear Creek County, or the immense Gold and Copper deposits of Boulder and Jefferson Counties, which united could quadruple the above-named amount. There are a number of Mines all within a short distance of each other in this territory, that have recently attracted the attention of English Capitalists. Several of these are now worked by English Companies, one being immensely productive, and capable in a few months of turning out 100 tons of Silver Lead Ore per day; while within a radius of three-quarters of a mile are twenty others, all opened and long proved to be highly productive and valuable, nearly all of which are in abeyance for a local market for their produce."

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